Estuary 3: Darien

Watershed Summary

Watershed Description and Maps

The Darien Estuary (Estuary 3) covers an area of approximately 3,920 acres in the southwestern corner of Connecticut. These impaired segments are located in the western portion of Long Island Sound (LIS). All of the impaired segments in this summary are located at least partially in the municipality of Darien, though two segments are also partially located in Norwalk, CT and two segments are partially located in Stamford, CT.

The Darien Estuary includes five segments impaired for direct shellfish harvesting. These segments were assessed by Connecticut Department of Energy and Environmental Protection (CT DEEP) and included in the CT 2010 303(d) list of impaired waterbodies. Some segments in the estuary are currently unassessed as of the writing of this document. This does not mean there are no potential issues on these segments, but indicates a lack of current data to evaluate the segments as part of the assessment process. An excerpt of the Integrated Water Quality Report is included in Table 1 (CT DEEP, 2010).

Impaired Segments

Segments 1 - 3 extend from the shoreline to approximately 1,000 feet offshore in Darien, Norwalk, and Stamford, CT. Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) is located in Norwalk and Darien from Fish Islands to Noroton Point and includes Bell Island Beach, Fish Islands, Contentment Island, Butlers Island, Fivemile River mouth, and Roton Point (Figure 1). Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) is located in Darien from Long Neck Point to Fish Islands and includes Hay Island and Great Island. Segment 3: LIS WB Shore – Darien Cove (CT-W2_017) is located in Darien and Stamford from Greenway Island area of outer Cove Harbor to Long Neck Point and includes Peartree Point Beach, Nash Island, and Darien River mouth.

Impaired Segment Facts

Impaired Segments, Classifications, and Areas (square miles):

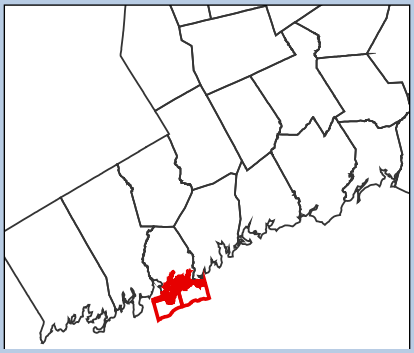
Segment 1: LIS WB Shore – Fivemile River Estuary (*CT-W2_015*); SA; 0.34
Segment 2: LIS WB Shore – Scott Cove (*CT-W2_016*); SA; 0.72
Segment 3: LIS WB Shore – Darien Cove (*CT-W2_017*); SA; 0.50
Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (*CT-W3_009*), SA; 2.45
Segment 5: LIS WB Midshore – Outer Cove Harbor (*CT-W3_010*); SA; 2.11

Municipalities: Darien, Norwalk, and Stamford

Designated Use Impairments: Shellfish

MS4 Applicable? Yes

Applicable Season: Recreation Season (May 1 to September 30) Year Round for Shellfish Uses



Segments 4 and 5 extend from approximately 1,000 feet offshore out to the 50-foot contour line in Darien, Norwalk, and Stamford, CT. Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) is located in Darien and Norwalk from outer Scott Cove near Fish Islands to Noroton Point area. Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) is located in Darien and Stamford off of Long Neck Point to outer Cove Harbor and includes Darien Cove and Scott Cove area (Figure 1).

These impaired segments (Segments 1 – 5) of the Darien Estuary have a water quality classification of SA. Designated uses include shellfish harvesting for direct human consumption, recreation, habitat for marine fish and other aquatic life and wildlife, industrial water supply, and navigation. These segments of the estuary are impaired due to elevated bacteria concentrations, affecting the designated use of direct shellfishing.

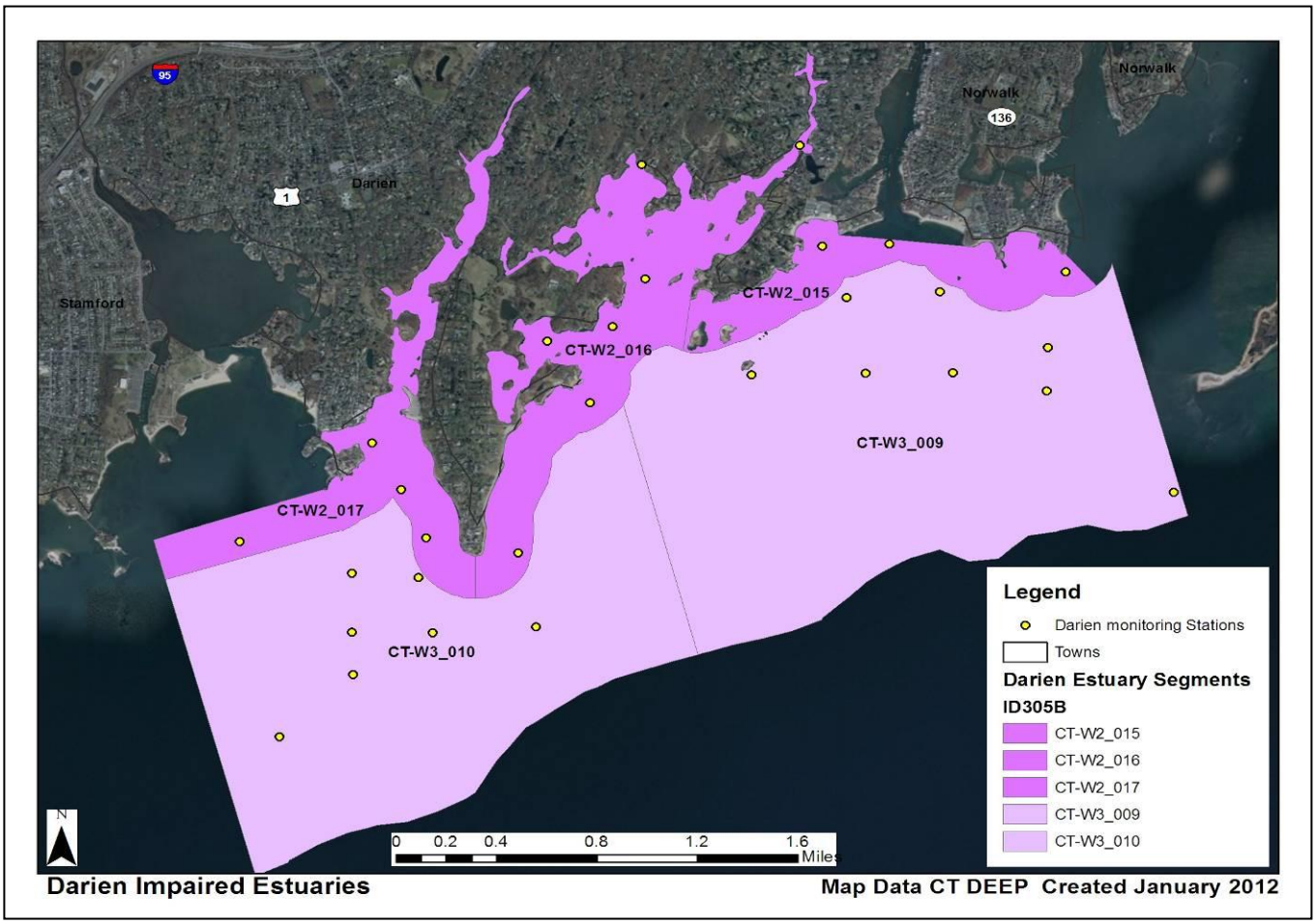
Table 1: Impaired segments in the Darien Estuary from the Connecticut 2010 Integrated Water Quality Report

Waterbody ID	Waterbody Name	Location	Square Miles	Marine Aquatic Life	Recreation	Direct Shellfish	Commercial Shellfish	Fish Consumption
CT-W2_015	LIS WB Shore - Fivemile River Estuary, Darien	Western portion of LIS from Fish Islands to Noroton Point (includes Bell Island Beach, Fish Islands, Contentment Island, Butlers Island, Fivemile River mouth, Roton Point) out approximately 1000 ft offshore, Darien.	0.34	U	FULL	NOT	////	FULL
CT-W2_016	LIS WB Shore - Scott Cove, Darien	Western portion of LIS from Long Neck Point to Fish Islands (includes Hay Island, Great Island) out approximately 1000 ft offshore, Darien.	0.72	U	U	NOT	////	FULL
CT-W2_017	LIS WB Shore - Darien Cove, Darien	Western portion of LIS from Greenway Island area of outer Cove Harbor to Long Neck Point (includes Pear Tree Point Beach, Nash Island, Darien River mouth) out approximately 1000 ft offshore, Darien.	0.50	U	FULL	NOT	////	FULL
CT-W3_009	LIS WB Midshore - Outer Fivemile River Estuary, Darien	Western portion of LIS from approximately 1000 ft offshore (outer Scott Cove near Fish Islands to Noroton Point area), out to 50 ft contour, Darien.	2.45	NOT	U	NOT	////	FULL

Table 1: Impaired segments in the Darien Estuary from the Connecticut 2010 Integrated Water Quality Report (continued)

Waterbody ID	Waterbody Name	Location	Square Miles	Marine Aquatic Life	Recreation	Direct Shellfish	Commercial Shellfish	Fish Consumption
CT-W3_010	LIS WB Midshore - Outer Cove Harbor, Darien	Western portion of LIS from approximately 1000 ft offshore (off of Long neck Point, outer Cove Harbor, Darien Cove, Scott Cove area), out to 50 ft contour, Darien.	2.11	NOT	U	NOT	////	FULL
Shaded cells indicate impaired segment addressed in this TMDL **FULL = Designated Use Fully Supported** **NOT = Designated Use Not Supported** **U = Unassessed** **/// = Not Applicable to Segment**								

Figure 1: GIS map featuring general location for impaired segments in the Darien Estuary



Shellfish Bed Classifications, Closures, and Lease Locations

The Connecticut Department of Agriculture/Bureau of Aquaculture (CT DA/BA) is responsible for regulating shellfish harvesting (http://www.ct.gov/doag/cwp/view.asp?a=1369&Q=259170). A shellfish growing area is defined by CT DA/BA as any area that supports or could support the growth and/or propagation of molluscan shellstock. Shellfish are defined by CT DA/BA as oysters, clams, mussels, and scallops, either shucked or in the shell, fresh or frozen, whole or in part. All shellfish growing areas are classified by CT DA/BA in accordance with the Interstate Shellfish Sanitation Conference (ISSC) National Shellfish Sanitation Program Model Ordinance (NSSP-MO) and CT General Statutes Chapter 491, §26-192e. These classifications, summarized below, are established to minimize health risks and may restrict the take and use of shellfish from some areas. They are based on fecal coliform bacteria standards as provided in the NSSP-MO (Interstate Shellfish Sanitation Conference, 2007). Any shellfish area, regardless of classification, may be temporarily closed to all activities when a potential public health emergency exists as a result of a storm event, flooding, sewage, chemical, or petroleum discharges, or a hazardous algal bloom.

Shellfish harvesting has been divided into two designated uses as specified in the Connecticut WQS: shellfish harvesting suitable for direct human consumption (Class SA waters), and shellfish harvesting suitable for commercial operations requiring depuration or relay (Class SB waters). The impaired segments in the Darien Estuary include only Class SA waters.

Shellfish Bed Classifications and Closures in the Darien Estuary

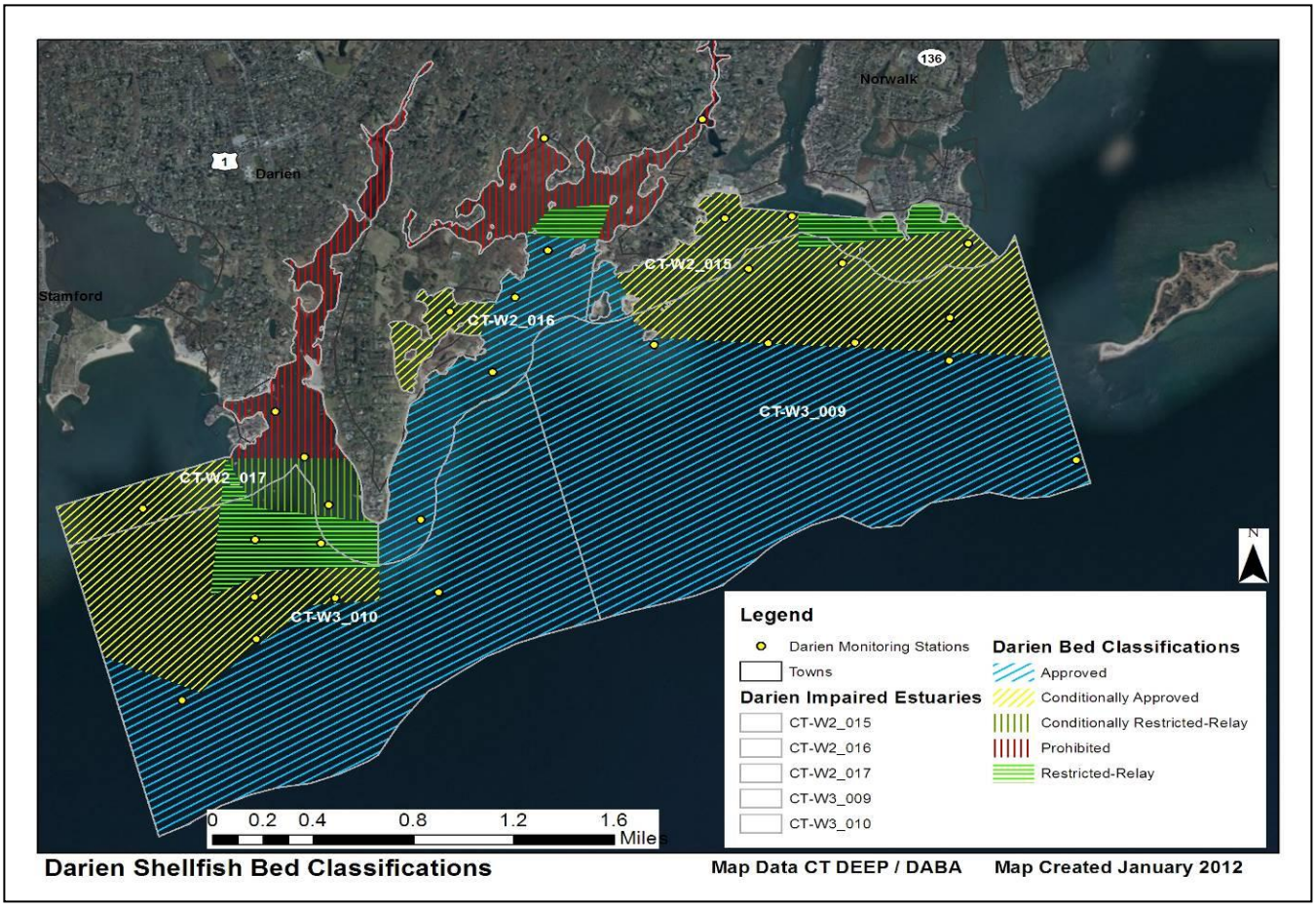
Shellfish classification areas in the Darien Estuary are shown in Figure 2. The following classifications for shellfish growing areas are defined by CT DA/BA:

> **Approved Area**: A growing area that is safe for the direct marketing or consumption of shellfish. An area may be classified as "Approved" when a sanitary survey finds that there is no contamination from human or animal fecal matter at levels that present an actual or potential public health hazard, and is not contaminated by pathogenic organisms, poisonous or deleterious substances, or marine biotoxins, and has water quality that meets the bacteriological standards for an Approved growing area.
>
> **Conditionally Approved Area**: A growing area that, when open, shellfish may be harvested recreationally for consumption, or commercially for market. An area may be classified as "Conditionally Approved" when a sanitary survey finds that these areas can remain open for a reasonable period of time, and that factors impacting the area are known and predictable and do not preclude a reasonable management approach. Bacteriological water quality must correlate with the factors impacting the growing area. Each Conditionally Approved growing area must have a written management plan that is adhered to by all responsible parties.
>
> **Restricted-Relay/Depuration**: A growing area in which the sanitary survey finds there are levels of fecal pollution, human pathogens, or poisonous or deleterious substances that can be reduced by relaying the shellstock to Approved or Conditionally Approved waters for natural cleansing or depuration. Shellfish from these areas may not be directly harvested for market or consumption.
>
> **Conditionally Restricted:** A growing area that the sanitary survey finds meets "Restricted" classification when the area is in the open status, and meets the "Prohibited" classification when the area is in the closed status. The management plan must designate whether harvested shellfish are relayed or depurated.

Prohibited: A growing area where there has not been a sanitary survey conducted within the last 12 years must be classified as Prohibited. Any area with a sewage treatment plant outfall or other point source that could impact public health is classified as Prohibited. This classification prohibits the harvest of shellfish except for seed oystering or depletion of the area.

As discussed above and shown in Table 1, Segments 1 – 5 did not meet their designated use for shellfish harvesting for direct human consumption due to bacteria (Table 1). The majority of Segment 1 (CT-W2_015) is Conditionally Approved, though the western-most portion near the Fish Islands is Approved and the mid to eastern portion near the mouth of Fivemile River, Noroton Point, and Bayley Beach Park is permitted by Restricted-Relay/Depuration. The majority of Segment 2 (CT-W2_016) is approved for shellfish harvesting, though Ziegler's Cove between Great Island and Long Neck Point is Conditionally Approved, inner Scott Cove is prohibited, and mid-Scott Cove is permitted by Restricted-Relay/Depuration. The western portion of Segment 3 (CT-W2_017) of outer Cove Harbor is Conditionally Approved for shellfishing, and the eastern portion is permitted by Restricted-Relay/Depuration near Long Neck Point and Conditionally Restricted-Relay/Depuration near Nash Island. The inner portion of Segment 3 part of the Goodwives River is prohibited from shellfish harvesting. Shellfishing is Approved for most of the outer portions of Segments 4 (CT-W3_009) and 5 (CT-W3_010). However, shellfishing is Conditionally Approved near the outer mouth of the Fivemile River of Segment 4 and the outer Cove Harbor portion of Segment 5. Segment 5 is also permitted by Restricted-Relay/Depuration and Conditionally Restricted-Relay/Depuration near Long Neck Point (Figure 2).

Figure 2: GIS map featuring shellfish bed classifications and closures for the impaired segments in the Darien Estuary



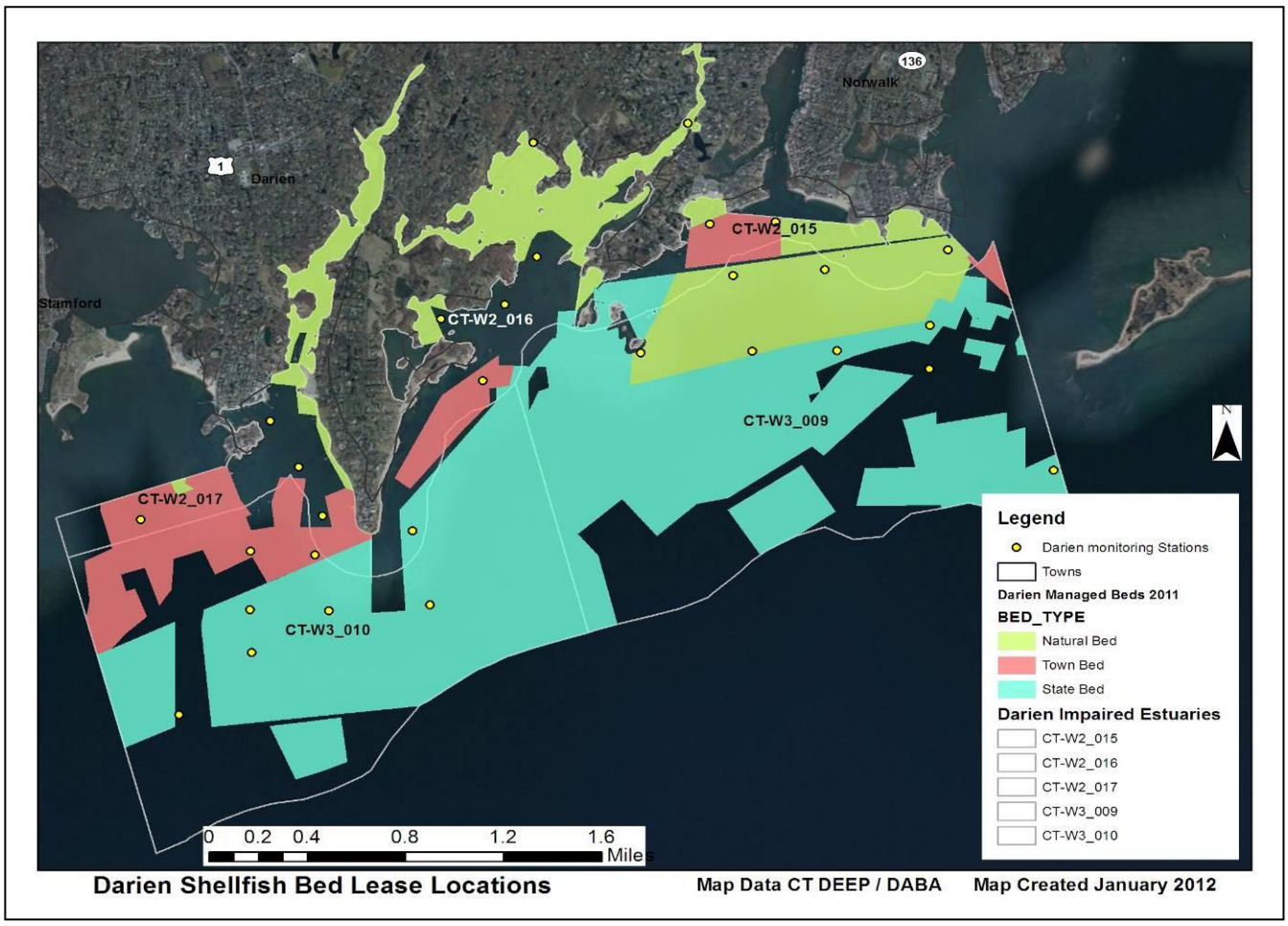
Shellfish Bed Lease Locations

Shellfish beds in the Darien Estuary are also classified by their management (Figure 3). CT DA/BA defines these areas as follows:

> **State and Town Beds**: In 1881, a line, referred to as the Commissioner's Line, was established to divide the waters of the State into northern and southern sections. All beds south of this line are State beds and most beds north of this line are town beds. Town beds are leased, owned or managed through the local shellfish commission. However, CT DA/BA still controls all the licensing and regulations for both state and town beds. For example, DA/BA issues licenses and determines when an area will be closed to shellfishing due to a change in water quality. Towns may require additional permits to work in waters under local jurisdiction. Beds north of the line in Westport, Milford, West Haven, and New Haven are exceptions to this as they are fully under State control.
>
> **State and Town Natural Beds**: Natural beds get their name from the fact that shellfish, especially oyster, naturally inhabited the area. These areas tend to be closer to shore, usually at the mouth of a river. Natural beds have specific regulations concerning their use, including licensing and harvesting methods. They are predominately seed beds that cannot be mechanically harvested. Use of natural beds requires a Relay/Transplant License I or II and/or Seed Oyster Harvesting License from CT DA/BA. Any person assisting in the harvesting of seed oysters must have a Helper's License. These beds cannot be leased or subdivided; they are to remain open to any properly licensed harvester. State natural beds are natural beds south of the Commissioner's Line. Descriptions of these beds can be found in §3295 of the Connecticut General Statutes (CGS), revision of 1918. Not all beds listed in §3295 were mapped, and many natural beds in State waters off Greenwich are managed through leases. Town natural beds were defined by law under §2326 of the CGS of 1888. Each town had the opportunity to map areas to be considered natural beds. The documents, written descriptions, and maps were submitted to the Superior Court with jurisdiction for that town. Several towns did not avail themselves to this opportunity, and some, such as Westport, have changed the delineation of their natural beds in recent court decisions. There are also areas that may have been declared natural beds, but are now leased.

The majority of shellfish beds in Segments 4 (CT-W3_009) and 5 (CT-W3_010) and portions of Segments 1 (CT-W2_015), 2 (CT-W2_016), and 3 (CT-W2_017) are State-managed beds. The outer portions of Segments 1, 2, and 3, the northern portion of Segment 5, and the northeastern-most portion of Segment 4 are town-managed beds. The inner portions of the Goodwives River, Scott Cove, the outer mouth of Fivemile River, and Noroton Point in Segments 1, 2, 3, and 5 are natural beds (Figure 3).

Figure 3: GIS map featuring shellfish bed lease locations for the impaired segments in the Darien Estuary



WHY IS A TMDL NEEDED?

For saltwater segments, the indicator bacteria, fecal coliform, is used in the CT Water Quality Standards (WQS) to assess shellfish uses for Class SA and SB waters (CTDEEP, 2011). Enterococcus is the indicator bacteria used to assess recreational uses for Class SA and SB waters. All data are from CT DEEP, USGS, Bureau of Aquaculture, or volunteer monitoring efforts at stations located on the impaired segments.

Segments 1 - 5 are Class SA saltwater waterbodies. Their applicable designated uses include shellfish harvesting for direct human consumption, recreation, habitat for marine fish and other aquatic life and wildlife, industrial water supply, and navigation. Water quality analyses were conducted using data from three sampling locations on Segments 1 (CT-W2_015) and 3 (CT-W2_017), six sampling locations on Segment 2 (CT-W2_016), seven sampling locations on Segment 5 (CT-W3_010), and eight sampling locations on Segment 4 (CT-W3_009). The water quality criteria for fecal coliform, along with bacteria sampling results from 2000 – 2011, are presented in Tables 14 – 18. These segments of the estuary are impaired due to elevated bacteria concentrations, affecting the designated use of shellfishing. To aid in identifying possible bacteria sources, the geometric mean was also calculated for wet-weather and dry-weather sampling days for all stations on Segments 1 – 5, where possible (Tables 14-18).

Segment 1 (CT-W2_015): As shown in Table 14, 90% less than values exceeded the WQS for fecal coliform multiple times at all stations in Segment 1 during the sampling period. Geometric mean values did not exceed the WQS for fecal coliform at any station for any sampling year. Geometric means for data collected during the sampling period were also calculated for each station using wet and dry-weather conditions, resulting in no exceedance of the WQS for fecal coliform.

Segment 2 (CT-W2_016): As shown in Table 15, 90% less than values exceeded the WQS for fecal coliform at least once at four of the six stations, including Stations 035-03.0, 035-04.0, 035-04.1, and 035-04.2, during the sampling period. Geometric mean values exceeded the WQS for fecal coliform only once at Station 035-04.2 in 2001 during the sampling period. Geometric means for data collected during the sampling period were also calculated for each station using wet and dry-weather conditions. Although there were geomean exceedances for 2001, geometric means for wet and dry-weather did not exceed the WQS for fecal coliform at any station.

Segment 3 (CT-W2_017): As shown in Table 16, geometric mean and 90% less than values exceeded the WQS for fecal coliform multiple times at Station 035-02.1 and once at Station 035-02.8 in Segment 3 during the sampling period. Geometric means for data collected during the sampling period were also calculated for each station using wet and dry-weather conditions, resulting in exceedances of the WQS for fecal coliform during wet-weather at Station 035-02.1.

Segment 4 (CT-W3_009): As shown in Table 17, 90% less than values exceeded the WQS for fecal coliform at least once at six of the eight stations in Segment 4 during the sampling period. Geometric means values exceeded the WQS for fecal coliform once at Stations 103-02.0 and 103-04.0 in 2002 and 2005, respectively. Geometric means for data collected during the sampling period were also calculated for each station using wet and dry-weather conditions. Although there were geomean exceedances in individual years, geometric means for wet and dry-weather did not exceed the WQS for fecal coliform at any station.

Segment 5 (CT-W3_010): As shown in Table 18, 90% less than values exceeded the WQS for fecal coliform multiple times at five of the seven stations and once at Station 035-02.6 in Segment 5 during the sampling period. Geometric mean values exceeded the WQS for fecal coliform once at Stations 035-02.3 and 035-02.5 in 2003 and 2005, respectively. Geometric means for data collected during the sampling period were also calculated for each station using wet and dry-weather conditions. Although there were geomean exceedances in individual years, geometric means for wet and dry-weather did not exceed the WQS for fecal coliform at any station.

Due to the elevated bacteria measurements presented in Tables 14-18, these five impaired segments did not meet CT's bacteria WQS, were identified as impaired, and were placed on the CT List of Waterbodies Not Meeting Water Quality Standards, also known as the CT 303(d) Impaired Waters List. The Clean Water Act requires that all 303(d) listed waters undergo a TMDL assessment that describes the impairments and identifies the measures needed to restore water quality. The goal is for all waterbodies to comply with State WQS.

Table 2: Sampling station location description for the impaired segments in the Darien Estuary

Waterbody ID	Waterbody Name	Station	Station Description	Municipality	Latitude	Longitude
CT-W2_015 (Segment 1)	LIS WB Shore - Fivemile River Estuary, Darien	103-01.0	Mouth Five Mile River	Norwalk	41.0563	-73.4468
		103-06.0	Noroton Pt.	Norwalk	41.0545	-73.4333
		035-08.0	Butlers Island Cove	Darien	41.0561	-73.4519
CT-W2_016 (Segment 2)	LIS WB Shore - Scott Cove, Darien	035-03.0	E. Long Neck Pt.	Darien	41.0363	-73.4749
		035-04.0	SE Hay Island	Darien	41.0460	-73.4695
		035-04.1	S. Great Island	Darien	41.0508	-73.4679
		035-04.2	Scott Cove	Darien	41.0539	-73.4654
		035-04.3	Sargents Cove	Darien		
		035-04.5	Scotts Cove	Darien		
CT-W2_017 (Segment 3)	LIS WB Shore - Darien Cove, Darien	135-11.0	near Nat Clocks Rock	Stamford	41.0369	-73.4961
		035-02.1	Mouth Goodwives River	Darien	41.0433	-73.4861
		035-02.8	Goodwives River Mooring Area	Darien		

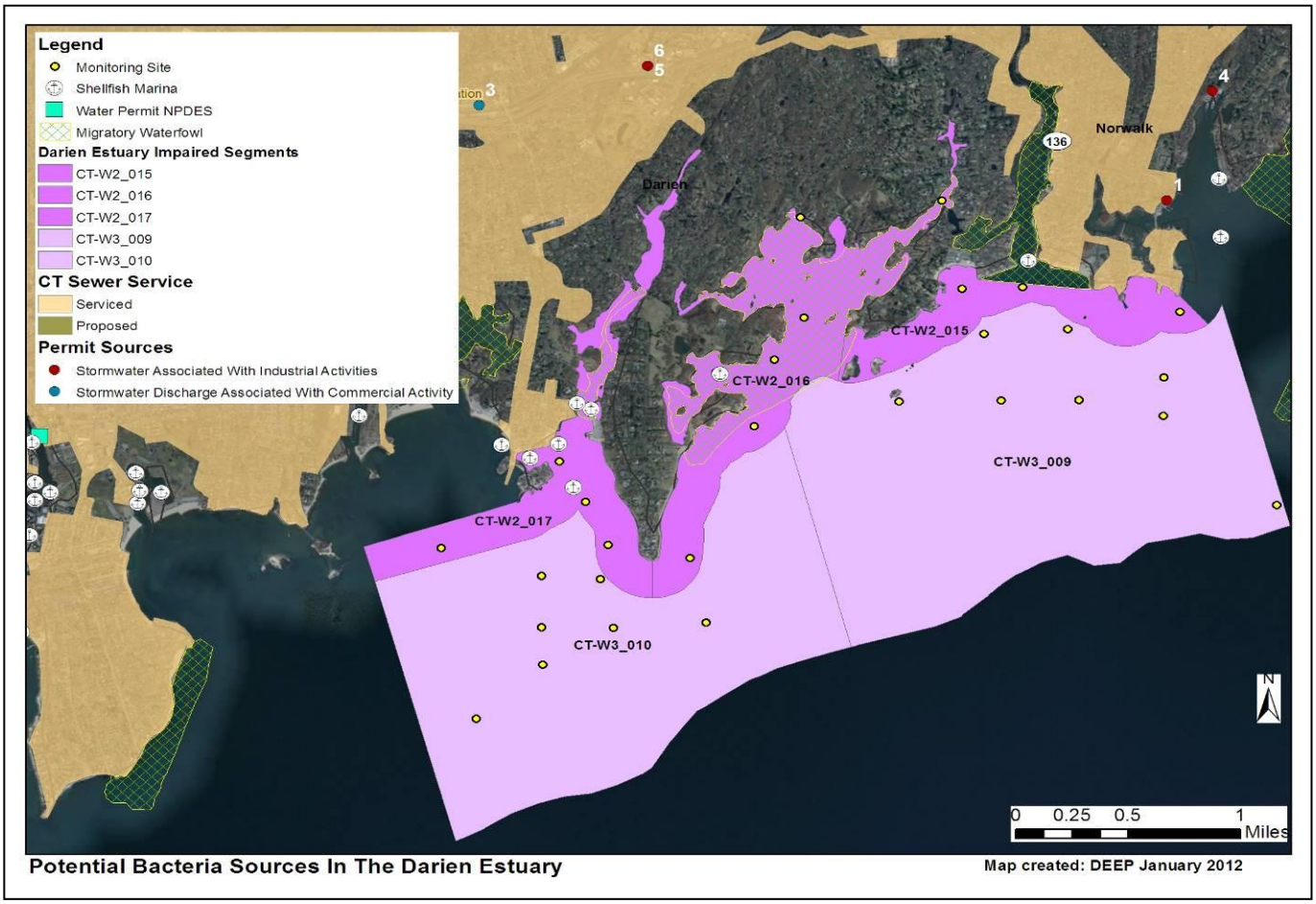
Table 2: Sampling station location description for the impaired segments in the Darien Estuary (continued)

Waterbody ID	Waterbody Name	Station	Station Description	Municipality	Latitude	Longitude
CT-W3_009 (Segment 4)	LIS WB Midshore - Outer Fivemile River Estuary, Darien	035-05.0	SE Fish Island	Darien	41.0478	-73.4572
		035-06.0	S. C"1" - S Butlers Island	Darien	41.0480	-73.4485
		035-07.0	N. C"1" - S Butlers Island	Darien	41.0528	-73.4500
		103-02.0	S. Five Mile River N"2"	Norwalk	41.0532	-73.4429
		103-03.0	S. Five Mile/N. Greens Ledge	Norwalk	41.0480	-73.4419
		103-04.0	NE Greens Ledge R"2A"	Norwalk	41.0469	-73.4347
		103-05.1	C"1A" S. Noroton Pt.	Norwalk	41.0497	-73.4346
		103-12.2	N"28" Great Reef	Norwalk	41.0405	-73.4249
CT-W3_010 (Segment 5)	LIS WB Midshore - Outer Cove Harbor, Darien	135-05.3	Smith Reef	Stamford	41.0244	-73.4930
		035-02.2	SW Long Neck Pt.	Darien	41.0347	-73.4825
		035-02.3	S. Nash Island	Darien	41.0349	-73.4875
		035-02.4	s. station 2.3	Darien	41.0312	-73.4875
		035-02.5	S. station 2.2	Darien	41.0312	-73.4813
		035-02.6	Long Neck Point	Darien	41.0316	-73.4735
		035-02.9	Outer Cove Harbor, Darien	Darien		

POTENTIAL BACTERIA SOURCES

Potential sources of indicator bacteria in a watershed include point and non-point sources, such as stormwater runoff, agriculture, sanitary sewer overflows (collection system failures), illicit discharges, and inappropriate discharges to the waterbody. Potential sources that have been tentatively identified in the Darien Estuary are presented in Table 3 and Figure 4. However, the list of potential sources is general in nature and should not be considered comprehensive. There may be other sources not listed here that contribute to the observed water quality impairment in the study segments. Further monitoring and investigation will confirm listed sources and discover additional ones. Some segments in this watershed are currently listed as unassessed by CT DEEP procedures. This does not mean that there are no data or impairments in existence in the segment. There are data from permitted sources for some segments, and CT DEEP recommends that any elevated concentrations found from those permitted sources be addressed through voluntary reduction measures. More detailed evaluation of potential sources is expected to become available as activities are conducted to implement these TMDLs.

Figure 4: Potential bacteria sources to the impaired segments in the Darien Estuary



The potential sources map for the impaired basin was developed after thorough analysis of available data sets. If information is not displayed in the map, then no sources were discovered during the analysis. The following is the list of potential sources that were evaluated: problems with migratory waterfowl, golf course locations, reservoirs, proposed and existing sewer service, cattle farms, poultry farms, permitted sources of bacteria loading (surface water discharge, MS4 permit, industrial stormwater, commercial stormwater, groundwater permits, and construction related stormwater), and leachate and discharge sources (agricultural waste, CSOs, failing septic systems, landfills, large septic tank leach fields, septage lagoons, sewage treatment plants, and water treatment or filter backwash).

Table 3: Potential bacteria sources to the impaired segments in the Darien Estuary

Segment #	Impaired Segment	Permit Source	Illicit Discharge	CSO/SSO Issue	Failing Septic System	Marinas	Stormwater Runoff	Nuisance Wildlife/Pets	Other
1	LIS WB Shore – Fivemile River Estuary CT-W2_015	**x**	**x**		**x**	**x**	**x**	**x**	
2	LIS WB Shore –Scott Cove CT-W2_016				**x**	**x**	**x**	**x**	
3	LIS WB Shore – Darien Cove CT-W2_017		**x**		**x**	**x**	**x**	**x**	
4	LIS WB Midshore – Outer Fivemile River Estuary CT-W3_009	**x**	**x**		**x**	**x**	**x**	**x**	
5	LIS WB Midshore – Outer Cove Harbor CT-W3_010		**x**		**x**	**x**	**x**	**x**	

Point Sources

Permitted sources within the watershed that could potentially contribute to the bacteria loading are identified in Table 4. This table includes permit types that may or may not be present in the impaired watershed. A list of active permits in municipalities that drain to the Darien estuary is included in Table 5. Additional investigation and monitoring could reveal the presence of other discharges in the estuary.

Table 4: General categories list of permitted discharges

Permit Code	Permit Description Type	Number in Estuary
CT	Surface Water Discharges	0
GPL	Discharge of Swimming Pool Wastewater	0
GSC	Stormwater Discharge Associated with Commercial Activity	1
GSI	Stormwater Associated with Industrial Activity	5
GSM	Part B Municipal Stormwater MS4	3
GSN	Stormwater Registration – Construction	0
LF	Groundwater Permit (Landfill)	0
UI	Underground Injection	0

Permitted Sources

As shown in Table 5, there are multiple permitted discharges in Darien that could be contributing bacteria to the impaired segments. These facilities include the Stop & Shop Supermarket, Darien Maintenance and Repair Facility, and multiple marinas throughout the watershed. According to the 2008 Darien Estuary Report, there are approximately 8 marinas in the Darien Estuary. These include the Rowyaton Yacht Club and Wilson Cove Marina. There are water quality data available from only one of these discharges (Table 6). Although this data cannot be compared to the WQS at there is no single sample shellfish standard for fecal coliform, a high fecal coliform count of 6,000 colonies/100 mL was sampled near the Town of Darien salt dome in 2001.

Since the MS4 permits are not targeted to a specific location, but the geographic area of the regulated municipality, there is no one accurate location on the map to display the location of these permits. One dot will be displayed at the geographic center of the municipality as a reference point. Sometimes this location falls outside of the targeted watershed and therefore the MS4 permit will not be displayed in the Potential Sources Map. Using the municipal border as a guideline will show which areas of an affected watershed are covered by an MS4 permit.

Table 5: Permitted facilities in Darien, CT that may be affecting the Darien Estuary

Town	Client	Permit ID	Permit Type	Site Name	Address	Map #
Darien	The Stop & Shop Supermarket Company Llc	GSC000088	Stormwater Discharge Associated With Commercial Activity	Stop & Shop #626	148 Heights Road	3
Darien	State Of Connecticut Department Of Transportation	GSI000014	Stormwater Associated With Industrial Activities	Darien Maintenance & Repair Facility	65 Brookside Drive	2
Darien	Town of Darien	GSI000223	Stormwater Associated With Industrial Activities	126 Ledge Road	126 Ledge Road	6

Table 5: Permitted facilities in Darien, CT that may be affecting the Darien Estuary (continued)

Town	Client	Permit ID	Permit Type	Site Name	Address	Map #
Darien	Town of Darien	GSI002144	Stormwater Associated With Industrial Activities	126 Ledge Road	126 Ledge Road	5
Darien	Town of Darien	GSM000046	Part B Municipal Stormwater MS4	Darien, Town of	N/A	NA
Norwalk	Wilson Cove Marina, Inc.	GSI001052	Stormwater Associated With Industrial Activities	Wilson Cove Marina, Inc.	120 Wilson Avenue	4
Norwalk	Rowayton Yacht Club	GSI002384	Stormwater Associated With Industrial Activities	Rowayton Yacht Club At Hickory Bluff	77 Bluff Avenue	1
Norwalk	City of Norwalk	GSM000024	Part B Municipal Stormwater MS4	Norwalk, City of	N/A	NA

Table 6: Industrial permits affecting the Darien Estuary and available fecal coliform data (colonies/100mL). The results cannot be compared to the water quality standard as there is no single sample shellfish standard for fecal coliform.

Town	Location	Permit Number	Receiving Water	Sample Location	Sample Date	Result
Darien	Town Of Darien	GSI000223	Darien Estuary	1 - brush pile	09/20/01	100
Darien	Town Of Darien	GSI000223	Darien Estuary	2 - salt dome	09/20/01	>6000

Municipal Stormwater Permitted Sources

Per the EPA Phase II Stormwater rule all municipal storm sewer systems (MS4s) operators located within US Census Bureau Urbanized Areas (UAs) must be covered under MS4 permits regulated by the appropriate State agency. There is an EPA waiver process that municipalities can apply for to not participate in the MS4 program. In Connecticut, EPA has granted such waivers to 19 municipalities. All participating municipalities within UAs in Connecticut are currently regulated under MS4 permits by CT DEEP staff in the MS4 program.

The US Census Bureau defines a UA as a densely settled area that has a census population of at least 50,000. A UA generally consists of a geographic core of block groups or blocks that exceeds the 50,000 people threshold and has a population density of at least 1,000 people per square mile. The UA will also include adjacent block groups and blocks with at least 500 people per square mile. A UA consists of all or part of one or more incorporated places and/or census designated places, and may include additional territory outside of any place. (67 FR 11663)

For the 2000 Census a new geographic entity was created to supplement the UA blocks of land. This created a block known as an Urban Cluster (UC) and is slightly different than the UA. The definition of a UC is a densely settled area that has a census population of 2,500 to 49,999. A UC generally consists of a geographic core of block groups or blocks that have a population density of at least 1,000 people per square mile, and adjacent block groups and blocks with at least 500 people per square mile. A UC

consists of all or part of one or more incorporated places and/or census designated places; such a place(s) together with adjacent territory; or territory outside of any place. The major difference is the total population cap of 49,999 people for a UC compared to >50,000 people for a UA. (67 FR 11663)

While it is possible that CT DEEP will be expanding the reach of the MS4 program to include UC municipalities in the near future they are not currently under the permit. However, the GIS layers used to create the MS4 maps in this Statewide TMDL did include both UA and UC blocks. This factor creates some municipalities that appear to be within an MS4 program that are not currently regulated through an MS4 permit. This oversight can explain a municipality that is at least partially shaded grey in the maps and there are no active MS4 reporting materials or information included in the appropriate appendix. While these areas are not technically in the MS4 permit program, they are still considered urban by the cluster definition above and are likely to contribute similar stormwater discharges to affected waterbodies covered in this TMDL.

As previously noted, EPA can grant a waiver to a municipality to preclude their inclusion in the MS4 permit program. One reason a waiver could be granted is a municipality with a total population less than 1000 people, even if the municipality was located in a UA. There are 19 municipalities in Connecticut that have received waivers, this list is: Andover, Bozrah, Canterbury, Coventry, East Hampton, Franklin, Haddam, Killingworth, Litchfield, Lyme, New Hartford, Plainfield, Preston, Salem, Sherman, Sprague, Stafford, Washington, and Woodstock. There will be no MS4 reporting documents from these towns even if they are displayed in an MS4 area in the maps of this document.

The list of US Census UCs is defined by geographic regions and is named for those regions, not necessarily by following municipal borders. In Connecticut the list of UCs includes blocks in the following Census Bureau regions: Colchester, Danielson, Lake Pocotopaug, Plainfield, Stafford, Storrs, Torrington, Willimantic, Winsted, and the border area with Westerly, RI (67 FR 11663). Any MS4 maps showing these municipalities may show grey areas that are not currently regulated by the CT DEEP MS4 permit program.

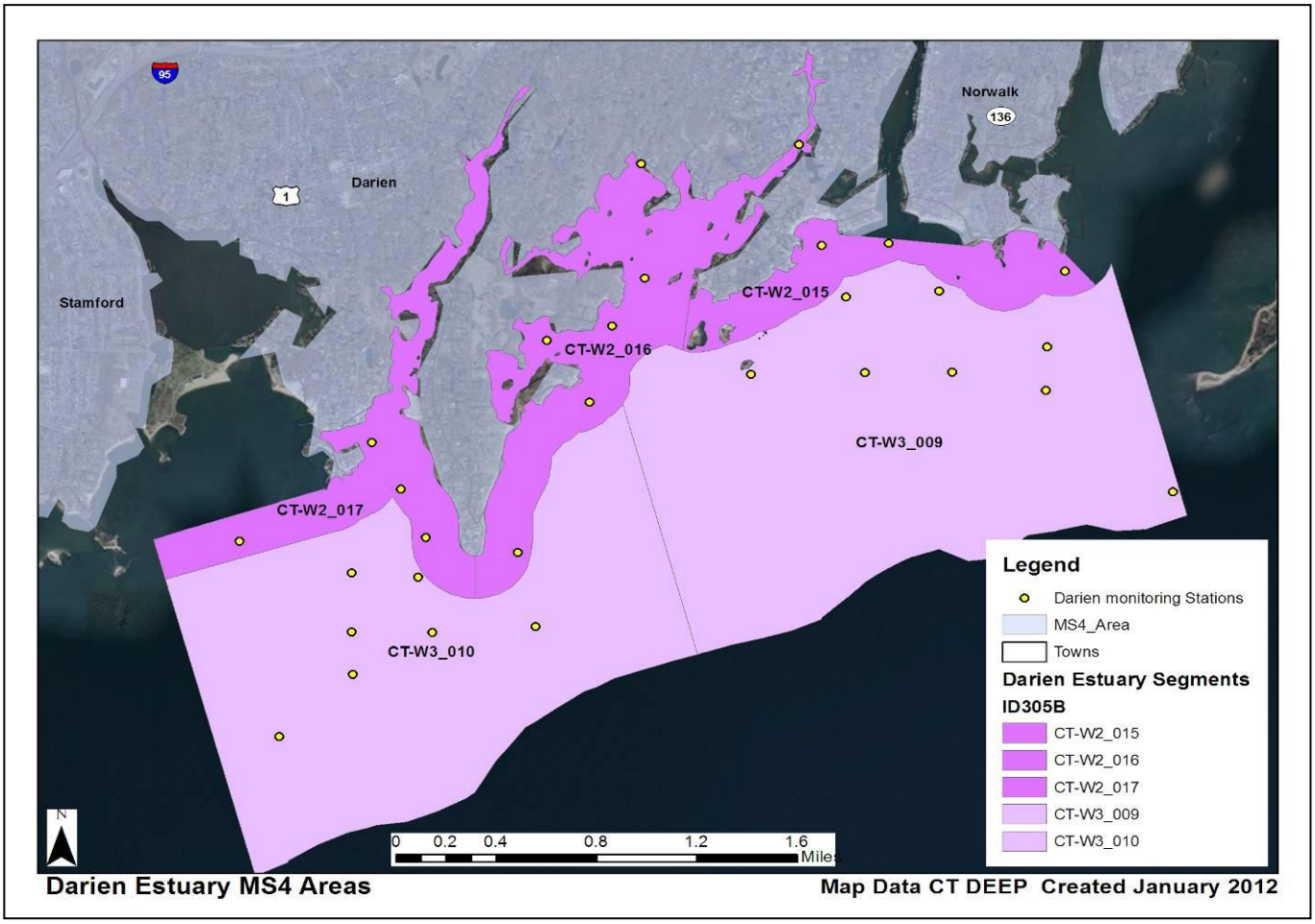
The impaired segments in the Darien Estuary are located within the Town of Darien, the City of Stamford, and the City of Norwalk, CT. As Connecticut's only municipality with a population greater than 100,000 and a municipal separate storm sewer, the City of Stamford's storm sewer discharges are regulated by an individual NPDES permit as required by EPA's Phase 1 regulations. Darien and Norwalk have designated urban areas, as defined by the U.S. Census Bureau and are required to comply with the General Permit for the Discharge of Stormwater from Small Municipal Storm Sewer Systems (MS4 permit) issued by CT DEEP (Figure 5). This general permit is only applicable to municipalities that are identified in Appendix A of the MS4 permit that contain designated urban areas and discharge stormwater via a separate storm sewer system to surface waters of the State. The permit requires municipalities to develop a Stormwater Management Plan (SMP) to reduce the discharge of pollutants as well as protect water quality. The MS4 permit is discussed further in the "TMDL Implementation Guidance" section of the core TMDL document. Additional information regarding stormwater management and the MS4 permit can be obtained on CTDEEP's website (http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325702&depNav_GID=1654).

There are potentially three MS4 outfalls that have been sampled for *E. coli* bacteria in the watershed in Darien, discharging indirectly to the estuary via the Goodwives River (Table 7). Although the results cannot be compared to the water quality standard as there is no single sample shellfish standard for *E. coli*, high counts were detected at all three outfalls on 8/15/2006.

Table 7: List of MS4 sample locations and *E. coli* (colonies/100 mL) results in the Darien Estuary. The results cannot be compared to the water quality standard as there is no single sample shellfish standard for *E. coli*.

Town	Location	MS4 Type	Receiving Waters	Sample Date	Result
Darien	#2 Old King's Highway South	Commercial	Goodwives River	04/03/06	20
Darien	#2 Old King's Highway South	Commercial	Goodwives River	08/15/06	1,203
Darien	#5 Prospect Avenue at Goodwives River/Brookside Road	Commercial	Goodwives River	04/03/06	50
Darien	#5 Prospect Avenue at Goodwives River/Brookside Road	Commercial	Goodwives River	08/15/06	1,203
Darien	#6 Pembroke Road at Salisbury Road	Commercial	Goodwives River	04/03/06	5
Darien	#6 Pembroke Road at Salisbury Road	Commercial	Goodwives River	08/15/06	1,046

Figure 5: MS4 areas near the Darien Estuary



Publicly Owned Treatment Works

The Stamford Water Pollution Control Facility (WPCF) (CT0101087) is located at 1 Harbor View Avenue on the East Branch of Stamford Harbor and has the potential to impact the shellfish growing waters in the Darien Estuary (Darien, 2008). According to the 2008 Stamford Estuary Report, the IEC inspected the effluent from the plant from 2006-2008 and no exceedances were reported. The 2008 Darien Estuary Report also identified fifteen pump stations connected to the Stamford WPCF, eight of which may be impacting the growing waters in the Darien Estuary (Darien, 2008). Upstream impacts from the New Canaan WPCF classified the mouth of the Fivemile River as Conditionally Approved (Darien, 2008). Bacteria data from the effluent of the Stamford and New Canaan WPCF are included in Table 8. Stamford WPCF exceeded its permit limits on several sampling dates from 2009 – 2011, while New Canaan did not exceed its permit limits on any date sampled from 2009 – 2011.

Table 8: Wastewater treatment plant fecal coliform (colonies/100 mL) data discharging to the Darien Estuary

Town	Permitee	Permit Number	Receiving Water	Date	30-Day Geometric Mean	7-Day Geometric Mean
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	01/31/2009	12	364
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	02/28/2009	15	126
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	03/31/2009	19	4060
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	04/30/2009	15	78
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	05/31/2009	33	93
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	06/30/2009	9	213
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	07/31/2009	40	160
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	08/31/2009	120	437
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	09/30/2009	25	227
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	10/31/2009	5	50
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	11/30/2009	11	38
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	12/31/2009	10	34
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	01/31/2010	24	215
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	02/28/2010	11	51

Table 8: Wastewater treatment plant fecal coliform (colonies/100 mL) data discharging to the Darien Estuary (continued)

Town	Permitee	Permit Number	Receiving Water	Date	30-Day Geometric Mean	7-Day Geometric Mean
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	03/31/2010	30	2273
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	04/30/2010	9	20000
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	05/31/2010	12	94
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	06/30/2010	13	59
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	07/31/2010	11	326
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	08/31/2010	8	108
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	09/30/2010	50	167
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	10/31/2010	19	195
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	11/30/2010	4	8
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	12/31/2010	14	29
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	01/31/2011	38	67
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	02/28/2011	21	33
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	03/31/2011	2	2
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	04/30/2011	4	1
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	05/31/2011	5	9
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	06/30/2011	12	28
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	07/31/2011	41	55
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	08/31/2011	18	198
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	09/30/2011	20	1252
Stamford	Stamford WPCF	CT0101087	Greenwich-Stamford Estuary - Stamford Harbor	10/31/2011	33	8095

Table 8: Wastewater treatment plant fecal coliform (colonies/100 mL) data discharging to the Darien Estuary (continued)

Town	Permitee	Permit Number	Receiving Water	Date	30-Day Geometric Mean	7-Day Geometric Mean
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	01/31/2009	9	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	02/28/2009	7	9
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	03/31/2009	9	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	04/30/2009	9	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	05/31/2009	9	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	06/30/2009	8	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	07/31/2009	8	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	08/31/2009	8	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	09/30/2009	8	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	10/31/2009	8	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	11/30/2009	8	9
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	12/31/2009	8	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	01/31/2010	7	8
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	02/28/2010	7	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	03/31/2010	9	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	04/30/2010	8	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	05/31/2010	9	9
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	06/30/2010	10	15
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	07/31/2010	7	9

Table 8: Wastewater treatment plant fecal coliform (colonies/100 mL) data discharging to the Darien Estuary (continued)

Town	Permitee	Permit Number	Receiving Water	Date	30-Day Geometric Mean	7-Day Geometric Mean
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	08/31/2010	9	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	09/30/2010	9	15
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	10/31/2010	8	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	11/30/2010	8	9
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	12/31/2010	8	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	01/31/2011	9	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	02/28/2011	8	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	03/31/2011	6	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	04/30/2011	8	10
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	05/31/2011	8	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	06/30/2011	10	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	07/31/2011	9	12
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	08/31/2011	8	11
New Canaan	New Canaan WPCF	CT0101273	Greenwich-Stamford Estuary - Five Mile River	09/30/2011	9	14
30-Day Geometric Mean Permit Limit = 200 colonies/100 mL **7-Day Geometric Mean Permit Limit = 400 colonies/100 mL**						

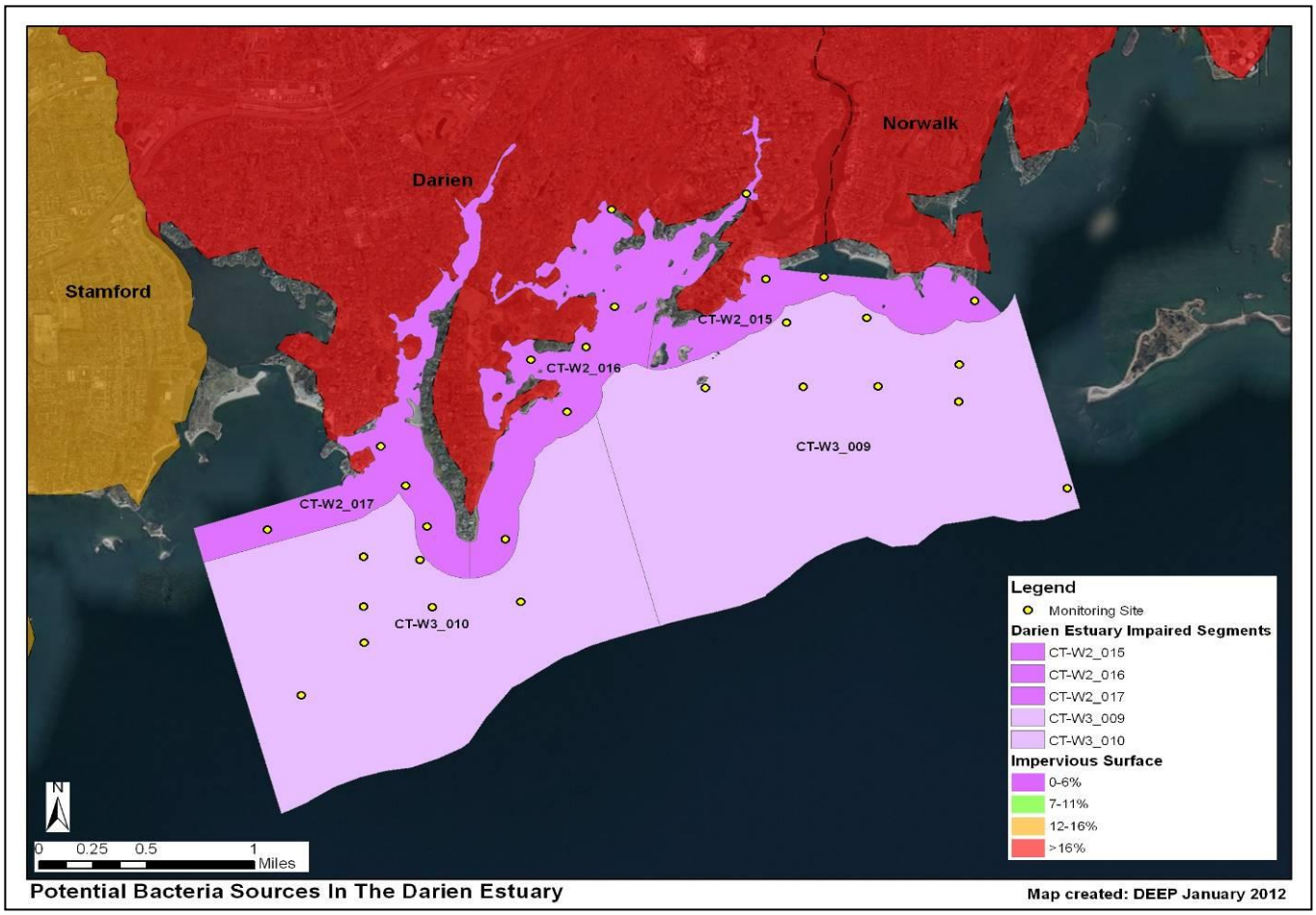
Non-point Sources

Non-point source (NPS) pollution comes from many diffuse sources and is more difficult to identify and control. NPS pollution is often associated with certain land-use practices. Examples of NPS that can contribute bacteria to surface waters include stormwater runoff, illicit discharges, insufficient septic systems, pet and wildlife waste, agriculture, and contact recreation (swimming or wading). With the waters of the Darien Estuary being tidally influenced, many bacterial sources that appear to be downstream of the impaired segment may be affecting the water quality in upstream segments. Potential sources of NPS to the impaired segments in the Darien Estuary are described below.

Stormwater Runoff from Developed Areas

The Town of Darien, the City of Norwalk, and the City of Stamford are heavily developed. Impervious surfaces, or surface areas such as roofs and roads that force water to run off land surfaces rather than infiltrate soil, often characterize developed areas. Studies have shown a link between the amount of impervious area in a watershed and water quality conditions (CWP, 2003). In one study, researchers correlated the amount of fecal coliform to the percentage of land with impervious cover in a watershed (Mallin *et al.*, 2000). According to the 2008 Darien Estuary Report, residential development of shorefront properties has increased total impervious cover along the coastal regions of Darien, which has increased stormwater runoff to the estuary. Coastal land bordering the Darien Estuary in the Town of Darien and the City of Norwalk exceed 16% impervious surfaces (Figure 6).

Figure 6: Impervious cover (%) for Darien and Westport, CT



Illicit Discharges and Insufficient Septic Systems

As shown in Figure 4, the majority of Darien, Norwalk, and Stamford rely on a municipal sanitary sewer system. According to the 2008 Darien Estuary Report, the sewer system extends from the western third of Darien near Holly Pond and the Goodwives River to the eastern side of the Fivemile River. While the sewer system is available for properties along Long Neck Point, most residents are not connected. The 2008 Darien Estuary Report identified five areas where sewage is infiltrating stormwater outfalls as well as sewage odors near a pump station leading to Weed Beach. Sewer system leaks and other illicit discharges can contribute bacteria to nearby surface waters. Although there were no bypass issues reported in 2008, a sewer line break in 2007 released 500 – 1,000 gallons of raw sewage to Scott Cove

and effectively closed the cove for a period of time. The Town of Darien plans to add 13,000 feet of low-pressure sewer line to the Goodwives River Road area, which will target homes with potentially failing septic systems (Darien, 2008).

A portion of the watershed, particularly near Segment 2 around Scott Cove, also relies on onsite wastewater treatment systems, such as septic systems. Properly managed septic systems and leach fields have the ability to effectively remove bacteria from waste. If systems are not maintained, waste will not be adequately treated and may result in bacteria reaching nearby surface and ground water. According to the 2008 Darien Estuary Report, there is concern for failing or inadequate septic systems at Cove Harbor, at the mouth of the Goodwives River, and around Scott Cove. Eight properties were identified near Peartree Point with severe restrictions to proper septic system drainage, and the Town Health Department has required these owners to connect their system to sanitary sewers. Two pipes flowing directly to Peartree Point Beach drain properties with septic systems, and testing of outflow from these pipes revealed elevated bacteria concentrations. In addition, two properties near Scott Cove were confirmed to have failing septic systems (Darien, 2008). In Connecticut, local health directors or health districts are responsible for keeping track of any reported insufficient or failing septic systems in a specific municipality. The Town of Darien has a full-time health director (http://www.darienct.gov/content/104/114/163/default.aspx). The City of Norwalk has a full-time health director (http://norwalkhealthdept.org/). The City of Stamford has a full-time health director (http://www.cityofstamford.org/content/25/52/140/214/364/default.aspx).

Wildlife and Domestic Animal Waste

Wildlife and domestic animals within the municipalities of Darien, Norwalk, and Stamford, including those present in the estuary, represent another potential source of bacteria to the impaired waterbodies. Elevated bacteria levels due solely to a natural population of wildlife are not subject to the WQS. However, any exacerbation of wildlife population sizes or residency times influenced by human activities is subject to the CT WQS and TMDL provisions. With the construction of roads and drainage systems, wastes from wildlife may no longer be retained on the landscape, but instead may be conveyed via stormwater to the nearest surface waterbody. As such, physical land alterations can exacerbate the impact of these natural sources on water quality (USEPA, 2001).

Geese and other waterfowl are known to congregate in open areas, including recreational fields, agricultural crop fields, and golf courses. In addition to creating a nuisance, large numbers of geese can create unsanitary conditions on the grassed areas and cause water quality problems due to bacterial contamination associated with their droppings. Large populations of geese can also lead to habitat destruction as a result of overgrazing on wetland and riparian plants. Multiple locations of concentrated migratory waterfowl have been identified throughout the Darien Estuary, including within Segment 3 (CT-W2_017) along the Goodwives River, Segment 2 (CT-W2_016) in Scott Cove, and Segment 1 (CT-W2_015) along the Fivemile River (Figure 4). Large flocks of birds were identified at Holly Pond and Scott Cove, including gulls, ducks, cormorants, geese, and Great Blue herons (Darien, 2008).

The 2008 Darien Estuary Report also identified a horse stable on Great Island with 20 horses on site. Although there is currently a waste management system in place, manure piles may still be a potential source to Scott Cove (Segment 2). A large deer population also exists on Great Island and Hay Island (Darien, 2008).

As indicated previously, portions of Darien, Norwalk, and Stamford near the estuary are heavily developed with commercial and residential properties. As such, waste from domestic animals, such as

dogs, may also be contributing to bacteria concentrations in these impaired segments in the Darien Estuary.

Marinas

As noted previously, multiple marinas are located within the Darien Estuary at Cove Harbor, Darien Cove, Scott Cove, and at the mouth of the Fivemile River (Figure 4 and Table 5). Marinas are located at the water's edge, and if no measures are taken to reduce pollutants, including buffering, pollutants can be transported via runoff from parking lots and hull maintenance areas directly into the marina basin. Common pollutants from marinas include bacteria and nutrients from stormwater runoff, solid and liquid materials used in boat maintenance and cleaning, fuel and oil, sewage from public restrooms and boat pump-outs, fish waste, and turbidity from boating activities. The use of pump out boats and facilities dramatically reduce bacteria loading from boats. The CT DEEP has information on regional pump-out boats and facilities at its website, http://www.ct.gov/dep/cwp/view.asp?a=2705&q=323708&depNav_GID=1711. There are several boats operating specifically in the Darien region. The service is free and eliminates the possibility of vessels dumping raw wastes into Long Island Sound, which is prohibited by CT Water Quality Standards Number 24, "the discharge of sewage from any vessel to any water is prohibited."

Recreation

People coming in direct contact with surface water presents another potential source of bacterial contamination. Microbial source tracking (MST) surveys conducted in New Hampshire have shown humans to be a source of bacterial contamination at beaches (Jones, 2008). It is probable that some bacterial contamination can be attributed to human activities in the Darien Estuary. According to the 2008 Darien Estuary Report, multiple beach closures were reported at Peartree Point Beach in Segment 3 (CT-W2_017).

Additional Sources

One water permit through the National Pollutant Discharge Elimination System (NPDES) program, which regulates the type and nature of discharges to waterbodies, was identified in Stamford. The individual NPDES permit issued to Stamford was required by EPA's Phase I regulations as the City has a municipal sewer system and a population greater than 100,000.

There may be other sources not listed here or identified in Figure 4 that contribute to the observed water quality impairments in the Darien Estuary. Further monitoring and investigation will confirm listed sources and discover additional ones. More detailed evaluation of potential sources is expected to become available as activities are conducted to implement this TMDL.

CURRENT MANAGEMENT ACTIVITIES

The Town of Darien, the City of Norwalk, and the City of Stamford have developed and implemented programs to protect water quality from bacterial contamination. In addition, the National Shellfish Sanitation Program (NSSP) has multiple requirements for the protection and evaluation of shellfish growing areas. More information about this program is provided below and available online: http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/FederalStatePrograms/NationalShellfishSanitationProgram/ucm053724.htm.

The NSSP requires the completion of a sanitary survey to determine acceptable and unacceptable growing areas, and to accurately classify a growing area as Approved, Conditionally Approved, Restricted, Conditionally Restricted, or Prohibited. A sanitary survey is an in-depth evaluation of all environmental factors impacting water quality in a shellfish growing area. Environmental factors include both actual and potential pollutant sources, whether natural or man-made, along with meteorological and hydrographic characteristics of the growing area. The principal components of a sanitary survey are: (1) identification and evaluation of pollutant sources, (2) evaluation of meteorological factors, (3) evaluation of hydrographic factors affecting the distribution of pollutants, and (4) assessment of water quality.

The sanitary survey includes data and results from the following:

1. Shoreline survey;
2. Survey of the bacteriological quality of the water;
3. Evaluation of meteorological, hydrodynamic, and geographic characteristics of the growing area;
4. Analysis of shoreline survey, bacteriological water quality, and meteorological, hydrodynamic, and geographic characteristics; and
5. Determination of the appropriate growing area classification

Maintaining updated sanitary survey records consists primarily of routinely evaluating major pollutant sources, collecting water quality data from sampling stations under the selected NSSP water quality monitoring strategy, and analyzing the data to ensure that the classification continues to represent current sanitary conditions in the growing area. The entire sanitary survey process must be repeated every 12 years. In the interim, the sanitary quality of each growing area must be reviewed as often as necessary to ensure appropriate classification. Certain sanitary survey components are required by the Model Ordinance to be updated annually and triennially.

The growing area classification and supporting data from the sanitary survey shall be reviewed at least every three years. As required by the NSSP, this triennial re-evaluation shall include:

1. A review of water quality sampling results;
2. Documentation of any new pollutant sources and evaluation of their impact on the growing area;
3. Re-evaluation of all pollutant sources, including sources previously identified in the sanitary survey, as necessary to fully evaluate any changes in the sanitary conditions of the growing area. Re-evaluation may or may not include a site visit;
4. A comprehensive report analyzing the sanitary survey data and determining whether the existing growing area classification is accurate or requires revision; and
5. Reclassification of the growing area if re-evaluation determines that conditions for classification have changed based on data collected during the triennial review

NSSP also requires that the sanitary survey be updated annually to reflect changes in conditions in the growing area. The annual re-evaluation shall include:

1. Field observation of pollutant sources during drive-through surveys, sample collections, or other information sources;
2. Addition and review of current year's water quality sampling results to a database collected in accordance with the bacteriological standards and sample collection required;
3. Review of available inspection reports and effluent samples collected from pollutant sources;
4. Review of available performance standards for various types of discharges impacting the growing area; and
5. A brief report documenting annual re-evaluation findings.

The most recent twelve-year sanitary survey report for the Shellfish Growing Waters in the Town of Darien was published in 2008 (Darien, 2008). According to this report, several growing areas were candidates for re-classification. The Prohibited line was extended at the Goodwives River from the southern tip of Nash Island to Long Neck Point. Ziegler's Cove mooring area in Segment 2 (CT-W2_016) was reclassified as Conditionally Approved. Scott Cove shorezone was reclassified as Prohibited from the northern point of Great Island to Contentment Island. The mouth of the Goodwives River area was reclassified from Approved to Restricted-Relay/Depuration and Conditionally Restricted-Relay/Depuration.

Other efforts have been taken by Darien, Norwalk, and Stamford to reduce bacteria to its surface waters. As indicated previously, Darien, Norwalk, and Stamford are regulated under the MS4 program. The MS4 General Permit is required for any municipality with urbanized areas that initiates, creates, originates or maintains any discharge of stormwater from a storm sewer system to waters of the State. The MS4 permit requires towns to design a Stormwater Management Plan (SMP) that reduces the discharge of stormwater pollutants to improve water quality. The plan must address the following six minimum measures:

1. Public Education and Outreach.
2. Public Involvement/Participation.
3. Illicit discharge detection and elimination.
4. Construction site stormwater runoff control.
5. Post-construction stormwater management in the new development and redevelopment.
6. Pollution prevention/good housekeeping for municipal operations.

Each municipality is also required to submit an annual update outlining steps taken to meet the six minimum measures. The most recent updates that address bacterial contamination in the watershed are summarized in Tables 9, 10, and 11.

Table 9: Summary of MS4 requirement updates related to the reduction of bacterial contamination from Darien, CT (Permit # GSM000046)

Minimum Measure	Darien Annual Report (2009)
Public Outreach and Education	1) Established household hazardous waste collection program. 2) Continued promotion and education of pet waste management. 3) Will create dumping control brochures.
Public Involvement and Participation	1) Will develop an Adopt-A-Stream Program. 2) Will conduct storm drain stenciling. 3) Will participate in watershed organizations.
Illicit Discharge Detection and Elimination	1) Will develop an Illict Discharge Ordinance and Program. 2) Will create a storm sewer map for future monitoring.

Table 9: Summary of MS4 requirement updates related to the reduction of bacterial contamination from Darien, CT (Permit # GSM000046) (continued)

Minimum Measure	Darien Annual Report (2009)
Construction Site Stormwater Runoff Control	1) No current activities.
Post Construction Stormwater Management	1) Will evaluate and update plan review and inspection programs.
Pollution Prevention and Good Housekeeping	1) Will clean catch basins and evaluate street sweeping programs. 2) Will provide spill response kits and training.

Table 10: Summary of MS4 requirement updates related to the reduction of bacterial contamination from Norwalk, CT (Permit # GSM000024)

Minimum Measure	Darien Annual Report (2007)
Public Outreach and Education	1) Distributed stormwater brochures through Darien River Watershed Initiative and the Maritime Aquarium. 2) Added stormwater management information to city website. 3) Will provide additional stormwater information through a local access channel.
Public Involvement and Participation	1) Sponsored annual DPW Open House for public participation. 2) Providing public education through grant on installation of catch basin filters. 3) Monthly Water Quality Committee meetings open to the public.
Illicit Discharge Detection and Elimination	1) Mapped all outfalls greater than 12" on the Darien and Silvermine Rivers (75% of outfalls). 2) Developing program to detect and eliminate illicit discharges. 3) Developing illicit discharge ordinance.
Construction Site Stormwater Runoff Control	1) Will review zoning and subdivision regulations pertaining to erosion and sedimentation control and stormwater control measures for all construction activities.
Post Construction Stormwater Management	1) Updated Storm Drainage Manual. 2) Will implement new training program for inspection procedures to ensure conformance to required stormwater management practices.
Pollution Prevention and Good Housekeeping	1) Developed a training program on pollution prevention measures for Public Works and other municipal operations. 2) Continued street sweeping program. 3) Purchased two new vactor trucks. 4) Spent $250,000 to clean catch basins, stormwater pipes and other stormwater structures.

Table 11: Summary of MS4 requirement updates related to the reduction of bacterial contamination from Stamford, CT (Permit # CT0030279)

Minimum Measure	City of Stamford 2011 Annual Report
Public Outreach and Education	1) Brochures developed and distributed
Public Involvement and Participation	1) Local Boy Scouts/Girl Scouts involved in marking catch basins.
Illicit Discharge Detection and Elimination	1) Continuing to address improper disposal/discharges. 2) Draft Stormwater ordinance developed.
Construction Site Stormwater Runoff Control	1) New developments are required to institute BMP's; although water quality improvements cannot be quantified.
Post Construction Stormwater Management	1) Continuing reviews of construction permits for stormwater management plans.
Pollution Prevention and Good Housekeeping	1) Continued to conduct street sweeping and catch basin cleaning. 2) Municipal golf course now keeps records of the use and storage of fertilizers, herbicides and pesticides.

RECOMMENDED NEXT STEPS

Darien, Norwalk, and Stamford have developed and implemented programs to protect water quality from bacterial contamination. Future mitigative activities are necessary to ensure the long-term protection of Segments 1 – 5 in the Darien Estuary and have been prioritized below.

1) Continue monitoring of permitted sources.

There are at least nine permitted sources in the Darien Estuary, some of which have shown historically high bacteria concentrations. Further monitoring will provide information essential to better locate, understand, and reduce pollution sources. If any current monitoring is not done with appropriate bacterial indicator based on the receiving water, then a recommended change during the next permit reissuance is to include the appropriate indicator species. If facility monitoring indicates elevated bacteria, then implementation of permit is required, and any voluntary measures to identify and reduce sources of bacterial contamination at the facility are also recommended. Regular monitoring should be established for all permitted sources to ensure compliance with permit requirements and to determine if current requirements are adequate or if additional measures are necessary for water quality protection.

Section 6(k) of the MS4 General Permit requires a municipality to modify their Stormwater Management Plan to implement the TMDL within four months of TMDL approval by EPA if stormwater within the municipality contributes pollutant(s) in excess of the allocation established by the TMDL. For discharges to impaired waterbodies, the municipality must assess and modify the six minimum measures of its plan, if necessary, to meet TMDL standards. Particular focus should be placed on the following plan components: public education, illicit discharge detection and elimination, stormwater structures cleaning, and the repair, upgrade, or retrofit of storm sewer structures. The goal of these modifications is to establish a program that improves water quality consistent with TMDL requirements. Modifications to the Stormwater Management Plan in response to TMDL development should be submitted to the Stormwater Program of DEEP for review and approval.

Tables 12 and 13 detail the appropriate bacteria criteria for use as waste load allocations established by this TMDL for use as water quality targets by permittees as permits are renewed and updated, within the Darien Estuary.

For any municipality subject to an MS4 permit and affected by a TMDL, the permit requires a modification of the SMP to include BMPs that address the included impairment. In the case of bacteria related impairments municipal BMPs could include: implementation or improvement to existing nuisance wildlife programs, septic system monitoring programs, any additional measures that can be added to the required illicit discharge detection and elimination (IDDE) programs, and increased street sweeping above basic permit requirements. Any non-MS4 municipalities can implement these same types of initiatives in effort to reduce bacteria source loading to impaired waterways.

Any facilities that discharge non-MS4 regulated stormwater should update their Pollution Prevention Plan to reflect BMPs that can reduce bacteria loading to the receiving waterway. These BMPs could include nuisance wildlife control programs and any installations that increase surface infiltration to reduce overall stormwater volumes. Facilities that are regulated under the Commercial Activities Stormwater Permit should report any updates to their SMP in their summary documentation submitted to DEEP.

Table 12. Bacteria (Enterococci) TMDLs, WLAs, and LAs for Recreational Uses.

		Instantaneous Enterococcus (#/100mL)				Geometric Mean Enterococcus (#/100mL)	
Class	**Bacteria Source**	**WLA[6]**		**LA[6]**		**WLA[6]**	**LA[6]**
	Recreational Use	**1**	**2**	**1**	**2**	**All**	**All**
SA[5]	Illicit sewer connection	0	0			0	
	Leaking sewer lines	0	0			0	
	Stormwater (MS4s)	104[7]	500[7]			35[7]	
	Stormwater (non-MS4)			104[7]	500[7]		35[7]
	Wildlife direct discharge			104[7]	500[7]		35[7]
	Human or domestic animal direct discharge[3]			104	500		35

(1) **Designated Swimming.** Procedures for monitoring and closure of bathing areas by State and Local Health Authorities are specified in: Guidelines for Monitoring Bathing Waters and Closure Protocol, adopted jointly by the Department of Environmental Protections and the Department of Public Health. May 1989. Revised April 2003 and updated December 2008.

(2) **Non-Designated Swimming.** Includes areas otherwise suitable for swimming but which have not been designated by State or Local authorities as bathing areas, waters which support tubing, water skiing, or other recreational activities where full body contact is likely.

(3) **All Other Recreational Uses.**

(4) Criteria for the protection of recreational uses in Class B waters do not apply when disinfection of sewage treatment plant effluents is not required consistent with Standard 23. (Class B surface waters located north of Interstate Highway I-95 and downstream of a sewage treatment plant providing seasonal disinfection May 1 through October 1, as authorized by the Commissioner.)

(5) Human direct discharge = swimmers

(6) Unless otherwise required by statute or regulation, compliance with this TMDL will be based on ambient concentrations and not end-of-pipe bacteria concentrations

(7) Replace numeric value with "natural levels" if only source is naturally occurring wildlife. Natural is defined as the biological, chemical and physical conditions and communities that occur within the environment which are unaffected or minimally affected by human influences (CT DEEP 2011a). Sections 2.2.2 and 6.2.7 of this Core Document deal with BMPs and delineating type of wildlife inputs.

Table 13: Bacteria (Fecal Coliform) TMDLs WLAs, and LAs for Shellfish Harvesting Areas.

		Geometric Mean Fecal coliform (#/100mL)[4]		90% less than Statistical measure Fecal Coliform (#/100mL)[4]	
Class	**Bacteria Source[1]**	**WLA[5]**	**LA[5]**	**WLA[5]**	**LA[5]**
SA Direct Consumption	CSOs	14		31	
	SSOs	0		0	
	OBDs[3]	0		0	
	Illicit sewer connection	0		0	
	Leaking sewer lines	0		0	
	Stormwater (MS4s)	14[6]		31[6]	
	Stormwater (non-MS4)		14[6]		31[6]
	Wildlife direct discharge		14[6]		31[6]
	Human or domestic animal direct discharge[2]		14		31
SB Indirect Consumption	Non-Stormwater NPDES	88		260	
	CSOs	88		260	
	SSOs	0		0	
	OBDs[3]	0		0	
	Illicit sewer connection	0		0	
	Leaking sewer lines	0		0	
	Stormwater (MS4s)	88[6]		260[6]	
	Stormwater (non-MS4)		88[6]		260[6]
	Wildlife direct discharge		88[6]		260[6]
	Human or domestic animal direct discharge[2]		88		260

(1) Criteria are based on utilizing the mTec method as specified in the U.S. Food and Drug Administration National Shellfish Sanitation Program-Model Ordinance (NSSP-MO) document *Guide for the Control of Molluscan Shellfish 2007.*

(2) Human direct discharge = swimmers

(3) All coastal and inland waters in Connecticut are designated as No Discharge Areas for Overboard Discharges (OBDs) from marine vessels with Marine Sanitation Devices.

(4) Adverse Condition Allocations apply to areas affected by Point Sources. Adverse Condition or Random Sampling Allocations apply to areas affected by Nonpoint Sources. Adverse condition is defined as "... a State or situation caused by meteorological, hydrological or seasonal events or point source discharges that have historically resulted in elevated [bacteria] levels in the particular growing area." USFDA 2005

(5) Unless otherwise required by statute or regulation, compliance with this TMDL will be based on ambient concentrations and not end-of-pipe bacteria concentrations

(6) Replace numeric value with "natural levels" if only source is naturally occurring wildlife. Natural is defined as the biological, chemical and physical conditions and communities that occur within the environment which are unaffected or minimally affected by human influences (CT DEEP 2011a). Sections 2.2.2 and 6.2.7 of this Core Document deal with BMPs and delineating type of wildlife inputs

2) Identify areas in Darien and Norwalk to implement Best Management Practices (BMPs) to control stormwater runoff.

As noted previously, Darien and Norwalk near the Darien Estuary have impervious cover greater than 16% and are urban areas regulated under the MS4 program. As such, stormwater runoff is likely contributing bacteria to the Darien Estuary. To identify areas that are contributing bacteria to the impaired segments, municipalities should conduct wet-weather sampling at stormwater outfalls that

discharge directly to the impaired segments in Darien Estuary. To treat stormwater runoff, the towns should identify areas along the developed sections of the impaired segments to install BMPs designed to encourage stormwater to infiltrate the ground before entering the waterbodies. These BMPs would disconnect impervious areas and reduce pollutant loads to the estuary. More detailed information and BMP recommendations can be found in the core TMDL document.

3) Implement a program to evaluate the sanitary sewer system.

Most of Darien, Norwalk, and Stamford, not including the area around Scott Cove, near the estuary rely on a municipal sewer system (Figure 4). It is important for Darien, Norwalk, and Stamford to develop a program to evaluate its sanitary sewer system and reduce leaks and overflows. This program should include periodic inspections of the sewer line.

4) Connect high-risk areas with failing septic systems to the sanitary sewer system.

The majority of residents near the Darien Estuary around Scott Cove and Long Neck Point rely on septic systems. Due to the proximity of these systems to the estuary and geographic risk for system failures, the sanitary sewer system should be extended to these communities. Until these septic systems can be connected to the sewer line, Darien, Norwalk, and Stamford should continue to monitor and inspect septic system failures, particularly in the area described above.

5) Evaluate municipal education and outreach programs regarding animal waste.

Any education and outreach program should highlight the importance of not feeding waterfowl and wildlife and managing waste from horses, dogs, and other pets. Municipalities and residents can take measures to minimize waterfowl-related impacts by allowing tall, coarse vegetation to grow in riparian areas of impaired segments frequented by waterfowl. Waterfowl, especially grazers like geese, prefer easy access to water. Maintaining an uncut vegetated buffer along the shore will make the habitat less desirable to geese and encourage migration. In addition, any educational program should emphasize that feeding waterfowl, such as ducks, geese, and swans, may contribute to water quality impairments in the Darien Estuary and can harm human health and the environment. Animal wastes should be disposed of away from any waterbody or storm drain system. BMPs effective at reducing the impact of animal waste on water quality include installing signage, providing pet waste receptacles in high-use areas, enacting ordinances requiring the clean-up of pet waste, and targeting educational and outreach programs in problem areas.

6) Improve education and outreach programs regarding boats and marinas.

Marinas must comply with permit requirements that limit bacteria contribution to the Darien Estuary. Other programs, such as Connecticut's Clean Marina Program, may also be adopted by all marinas in the estuary to reduce bacteria contribution from non-point source pollution from marinas (http://www.ct.gov/dep/cwp/view.asp?a=2705&q=323530&depNav_GID=1635). The Clean Marina Program is a voluntary program that encourages inland and coastal marina operators to minimize pollution, and recognizes Connecticut marinas, boatyards, and yacht clubs that go above and beyond regulatory compliance as "Certified Clean Marinas." All certified marinas receive a weatherproof Clean Marina Flag to fly at their facility and authorization to use the Clean Marina Program logo on company publications. CT DEEP recognizes certified Clean Marinas through press releases, on its web page, and at public events. As a companion to the Clean Marina Program, the Clean Boater Program encourages boaters to use clean boating techniques when operating and maintaining their boats.

BACTERIA DATA AND PERCENT REDUCTIONS TO MEET THE TMDL

Table 14: Segment 1: LIS WB Shore – Fivemile River Estuary Bacteria Data

Waterbody ID: CT-W2_015

Characteristics: Saltwater, Class SA, Shellfishing Harvesting for Direct Human Consumption, Recreation, Habitat for Marine Fish and other Aquatic Life and Wildlife, Industrial Water Supply, and Navigation

Impairment: Shellfish harvesting (*fecal coliform)*

Water Quality Criteria for fecal coliform:

Geometric Mean: 14 colonies/100 mL

90% of samples less than: 31 colonies/100 mL

Percent Reduction to meet TMDL:

Geometric Mean: **NA**

90% of samples less than: **40%**

Data: 2000 - 2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-08.0	Butlers Is Cove	2/16/00	2	wet	3	NA
035-08.0	Butlers Is Cove	5/15/00	2	wet		
035-08.0	Butlers Is Cove	5/25/00	8	wet		
035-08.0	Butlers Is Cove	6/21/00	14	dry		
035-08.0	Butlers Is Cove	8/7/00	4	dry		
035-08.0	Butlers Is Cove	9/13/00	2	wet		
035-08.0	Butlers Is Cove	1/23/01	2	dry	8	**40**
035-08.0	Butlers Is Cove	2/7/01	2	wet		
035-08.0	Butlers Is Cove	6/26/01	2	dry		
035-08.0	Butlers Is Cove	8/15/01	50	wet		
035-08.0	Butlers Is Cove	8/28/01	36	wet		
035-08.0	Butlers Is Cove	8/30/01	36	dry		
035-08.0	Butlers Is Cove	1/9/02	6	dry	**12* (NA)**	**40**
035-08.0	Butlers Is Cove	9/3/02	51	wet		
035-08.0	Butlers Is Cove	9/4/02	50	wet		
035-08.0	Butlers Is Cove	10/28/02	2	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-08.0	Butlers Is Cove	2/26/03	2	wet	7	15
035-08.0	Butlers Is Cove	6/11/03	8	dry		
035-08.0	Butlers Is Cove	8/18/03	51	wet		
035-08.0	Butlers Is Cove	10/6/03	4	dry		
035-08.0	Butlers Is Cove	4/19/04	2	wet	4	NA
035-08.0	Butlers Is Cove	7/7/04	2	wet		
035-08.0	Butlers Is Cove	8/23/04	22	wet		
035-08.0	Butlers Is Cove	8/16/05	81	wet	NA	90
035-08.0	Butlers Is Cove	7/9/07	6	dry	4	7
035-08.0	Butlers Is Cove	7/24/07	10	wet		
035-08.0	Butlers Is Cove	8/8/07	32	wet		
035-08.0	Butlers Is Cove	8/23/07	4	wet		
035-08.0	Butlers Is Cove	9/13/07	1	wet		
035-08.0	Butlers Is Cove	10/31/07	1	dry		
035-08.0	Butlers Is Cove	2/4/08	1	dry	3	NA
035-08.0	Butlers Is Cove	7/28/08	10	dry		
035-08.0	Butlers Is Cove	8/5/08	10	dry		
035-08.0	Butlers Is Cove	8/11/08	2	dry		
035-08.0	Butlers Is Cove	9/10/08	4	wet		
035-08.0	Butlers Is Cove	9/16/08	1	wet		
035-08.0	Butlers Is Cove	12/15/08	2	wet		
035-08.0	Butlers Is Cove	12/23/08	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-08.0	Butlers Is Cove	4/2/09	1	dry		
035-08.0	Butlers Is Cove	4/22/09	7	wet		
035-08.0	Butlers Is Cove	6/11/09	53	wet		
035-08.0	Butlers Is Cove	6/29/09	2	dry		
035-08.0	Butlers Is Cove	7/23/09	36	wet		
035-08.0	Butlers Is Cove	8/3/09	1	wet	3	8
035-08.0	Butlers Is Cove	8/27/09	2	dry		
035-08.0	Butlers Is Cove	8/31/09	1	wet		
035-08.0	Butlers Is Cove	9/15/09	1	dry		
035-08.0	Butlers Is Cove	11/16/09	1	wet		
035-08.0	Butlers Is Cove	12/15/09	1	wet		
035-08.0	Butlers Is Cove	3/2/10	1	wet		
035-08.0	Butlers Is Cove	3/17/10	1	wet		
035-08.0	Butlers Is Cove	5/5/10	3	wet		
035-08.0	Butlers Is Cove	5/20/10	3	wet		
035-08.0	Butlers Is Cove	6/23/10	1	wet	3	NA
035-08.0	Butlers Is Cove	8/17/10	10	wet		
035-08.0	Butlers Is Cove	8/25/10	9	wet		
035-08.0	Butlers Is Cove	9/29/10	9	wet		
035-08.0	Butlers Is Cove	12/13/10	9	wet		
035-08.0	Butlers Is Cove	12/16/10	1	dry		
035-08.0	Butlers Is Cove	1/19/11	2	wet		
035-08.0	Butlers Is Cove	3/14/11	1	dry		
035-08.0	Butlers Is Cove	4/26/11	1	dry		
035-08.0	Butlers Is Cove	5/23/11	23	wet	3	4
035-08.0	Butlers Is Cove	6/20/11	39	wet		
035-08.0	Butlers Is Cove	6/27/11	1	dry		
035-08.0	Butlers Is Cove	7/21/11	2	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-01.0	Mouth Five Mile River	2/16/00	6	wet	**12* (NA)**	23
103-01.0	Mouth Five Mile River	5/15/00	4	wet		
103-01.0	Mouth Five Mile River	5/25/00	51	wet		
103-01.0	Mouth Five Mile River	6/21/00	8	dry		
103-01.0	Mouth Five Mile River	8/7/00	6	dry		
103-01.0	Mouth Five Mile River	9/13/00	51	wet		
103-01.0	Mouth Five Mile River	1/23/01	2	dry	10	6
103-01.0	Mouth Five Mile River	2/2/01	18	dry		
103-01.0	Mouth Five Mile River	2/7/01	2	wet		
103-01.0	Mouth Five Mile River	8/15/01	18	wet		
103-01.0	Mouth Five Mile River	8/28/01	51	wet		
103-01.0	Mouth Five Mile River	8/30/01	28	dry		
103-01.0	Mouth Five Mile River	1/9/02	6	dry	**12* (NA)**	**40**
103-01.0	Mouth Five Mile River	9/3/02	51	wet		
103-01.0	Mouth Five Mile River	9/4/02	51	wet		
103-01.0	Mouth Five Mile River	10/28/02	2	wet		
103-01.0	Mouth Five Mile River	2/26/03	2	wet	7	6
103-01.0	Mouth Five Mile River	4/30/03	2	dry		
103-01.0	Mouth Five Mile River	6/11/03	22	dry		
103-01.0	Mouth Five Mile River	8/6/03	28	wet		
103-01.0	Mouth Five Mile River	8/18/03	51	wet		
103-01.0	Mouth Five Mile River	8/19/03	2	wet		
103-01.0	Mouth Five Mile River	8/23/04	51	wet	NA	90
103-01.0	Mouth Five Mile River	8/16/05	81	wet	NA	90
103-01.0	Mouth Five Mile River	9/6/06	50	dry	NA	90
103-01.0	Mouth Five Mile River	7/9/07	61	dry	9	10
103-01.0	Mouth Five Mile River	7/24/07	28	wet		
103-01.0	Mouth Five Mile River	8/23/07	1	wet		
103-01.0	Mouth Five Mile River	9/13/07	10	wet		
103-01.0	Mouth Five Mile River	12/5/07	4	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-01.0	Mouth Five Mile River	2/20/08	5	wet	5	4
103-01.0	Mouth Five Mile River	7/28/08	1	dry		
103-01.0	Mouth Five Mile River	8/11/08	12	dry		
103-01.0	Mouth Five Mile River	9/10/08	35	wet		
103-01.0	Mouth Five Mile River	9/16/08	4	wet		
103-01.0	Mouth Five Mile River	12/15/08	2	wet		
103-01.0	Mouth Five Mile River	12/23/08	8	wet		
103-01.0	Mouth Five Mile River	4/2/09	1	dry	8	8
103-01.0	Mouth Five Mile River	4/22/09	15	wet		
103-01.0	Mouth Five Mile River	6/10/09	81	wet		
103-01.0	Mouth Five Mile River	6/29/09	6	dry		
103-01.0	Mouth Five Mile River	7/23/09	14	wet		
103-01.0	Mouth Five Mile River	8/3/09	4	wet		
103-01.0	Mouth Five Mile River	8/26/09	2	dry		
103-01.0	Mouth Five Mile River	8/31/09	7	wet		
103-01.0	Mouth Five Mile River	9/15/09	14	dry		
103-01.0	Mouth Five Mile River	11/16/09	3	wet		
103-01.0	Mouth Five Mile River	12/15/09	37	wet		
103-01.0	Mouth Five Mile River	3/2/10	1	wet	11	28
103-01.0	Mouth Five Mile River	3/17/10	1	wet		
103-01.0	Mouth Five Mile River	5/4/10	81	wet		
103-01.0	Mouth Five Mile River	5/19/10	10	wet		
103-01.0	Mouth Five Mile River	8/17/10	38	wet		
103-01.0	Mouth Five Mile River	8/25/10	9	wet		
103-01.0	Mouth Five Mile River	12/13/10	81	wet		
103-01.0	Mouth Five Mile River	12/16/10	7	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore–Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-01.0	Mouth Five Mile River	1/19/11	9	wet	6	4
103-01.0	Mouth Five Mile River	4/19/11	5	wet		
103-01.0	Mouth Five Mile River	4/26/11	1	dry		
103-01.0	Mouth Five Mile River	5/23/11	40	wet		
103-01.0	Mouth Five Mile River	6/20/11	12	wet		
103-01.0	Mouth Five Mile River	6/27/11	1	dry		
103-01.0	Mouth Five Mile River	7/21/11	9	dry		
103-06.0	Noroton Pt.	2/16/00	2	wet	6	10
103-06.0	Noroton Pt.	5/15/00	4	wet		
103-06.0	Noroton Pt.	6/21/00	2	dry		
103-06.0	Noroton Pt.	8/7/00	11	dry		
103-06.0	Noroton Pt.	9/13/00	51	wet		
103-06.0	Noroton Pt.	1/23/01	2	dry	5	23
103-06.0	Noroton Pt.	2/2/01	36	dry		
103-06.0	Noroton Pt.	2/7/01	2	wet		
103-06.0	Noroton Pt.	8/15/01	2	wet		
103-06.0	Noroton Pt.	8/28/01	51	wet		
103-06.0	Noroton Pt.	8/30/01	4	dry		
103-06.0	Noroton Pt.	1/9/02	4	dry	7	23
103-06.0	Noroton Pt.	9/3/02	51	wet		
103-06.0	Noroton Pt.	10/28/02	2	wet		
103-06.0	Noroton Pt.	2/26/03	2	wet	6	NA
103-06.0	Noroton Pt.	4/30/03	2	dry		
103-06.0	Noroton Pt.	6/11/03	8	dry		
103-06.0	Noroton Pt.	8/6/03	28	wet		
103-06.0	Noroton Pt.	8/19/03	11	wet		
103-06.0	Noroton Pt.	8/16/05	81	wet	NA	90
103-06.0	Noroton Pt.	9/6/06	4	dry	NA	90
103-06.0	Noroton Pt.	7/9/07	5	dry	2	NA
103-06.0	Noroton Pt.	8/23/07	3	wet		
103-06.0	Noroton Pt.	9/13/07	1	wet		
103-06.0	Noroton Pt.	12/5/07	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-06.0	Noroton Pt.	2/20/08	9	wet	3	3
103-06.0	Noroton Pt.	7/28/08	1	dry		
103-06.0	Noroton Pt.	8/11/08	1	dry		
103-06.0	Noroton Pt.	9/10/08	81	wet		
103-06.0	Noroton Pt.	9/16/08	1	wet		
103-06.0	Noroton Pt.	12/15/08	2	wet		
103-06.0	Noroton Pt.	12/16/08	6	wet		
103-06.0	Noroton Pt.	12/23/08	2	wet		
103-06.0	Noroton Pt.	4/2/09	1	dry	4	NA
103-06.0	Noroton Pt.	4/22/09	12	wet		
103-06.0	Noroton Pt.	6/10/09	44	wet		
103-06.0	Noroton Pt.	6/29/09	4	dry		
103-06.0	Noroton Pt.	8/3/09	5	wet		
103-06.0	Noroton Pt.	8/26/09	1	dry		
103-06.0	Noroton Pt.	8/31/09	3	wet		
103-06.0	Noroton Pt.	9/15/09	3	dry		
103-06.0	Noroton Pt.	10/28/09	8	dry		
103-06.0	Noroton Pt.	10/29/09	6	wet		
103-06.0	Noroton Pt.	11/16/09	1	wet		
103-06.0	Noroton Pt.	12/15/09	2	wet		
103-06.0	Noroton Pt.	3/2/10	1	wet	3	3
103-06.0	Noroton Pt.	3/17/10	1	wet		
103-06.0	Noroton Pt.	5/4/10	41	wet		
103-06.0	Noroton Pt.	5/19/10	11	wet		
103-06.0	Noroton Pt.	8/17/10	7	wet		
103-06.0	Noroton Pt.	8/25/10	1	wet		
103-06.0	Noroton Pt.	12/13/10	1	wet		
103-06.0	Noroton Pt.	12/16/10	2	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-06.0	Noroton Pt.	4/19/11	2	wet	2	NA
103-06.0	Noroton Pt.	4/26/11	1	dry		
103-06.0	Noroton Pt.	5/23/11	10	wet		
103-06.0	Noroton Pt.	6/20/11	3	wet		
103-06.0	Noroton Pt.	6/27/11	1	dry		
103-06.0	Noroton Pt.	7/21/11	1	dry		

Shaded cells indicate an exceedance of water quality criteria

†Average of two duplicate samples

**** Weather conditions for selected data taken from Hartford because local station had missing data**

***Indicates geometric mean and 90% less than values used to calculate the percent reduction**

Wet and dry weather geometric mean values for all monitoring stations on Segment 1: LIS WB Shore – Fivemile River Estuary (CT-W2_015)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
103-01.0	Mouth Five Mile River	2000-2005, 2007-2011	43	23	4	5	3
103-06.0	Noroton Pt.	2000-2011	43	20	9	11	6
035-08.0	Butlers Is Cove	2000-2011	38	21	4	5	3

Shaded cells indicate an exceedance of water quality criteria

Table 15: Segment 2: LIS WB Shore – Scott Cove Bacteria Data

Waterbody ID: CT-W2_016

Characteristics: Saltwater, Class SA, Shellfishing Harvesting for Direct Human Consumption, Recreation, Habitat for Marine Fish and other Aquatic Life and Wildlife, Industrial Water Supply, and Navigation

Impairment: Shellfish harvesting (f*ecal coliform bacteria)*

Water Quality Criteria for fecal coliform:

Geometric Mean: 14 colonies/100 mL

90% of samples less than: 31 colonies/100 mL

Percent Reduction to meet TMDL:

Geometric Mean: **NA**

90% of samples less than: **23%**

Data: 2000 – 2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-03.0	E. Long Neck Pt.	4/24/00	2	wet	2	NA
035-03.0	E. Long Neck Pt.	5/15/00	2	wet		
035-03.0	E. Long Neck Pt.	5/25/00	2	wet		
035-03.0	E. Long Neck Pt.	6/21/00	2	dry		
035-03.0	E. Long Neck Pt.	7/18/00	2	dry		
035-03.0	E. Long Neck Pt.	7/19/00	6	dry		
035-03.0	E. Long Neck Pt.	9/13/00	4	wet		
035-03.0	E. Long Neck Pt.	4/2/01	2	wet	4	NA
035-03.0	E. Long Neck Pt.	5/29/01	4	dry		
035-03.0	E. Long Neck Pt.	6/20/01	11	wet		
035-03.0	E. Long Neck Pt.	8/15/01	6	wet		
035-03.0	E. Long Neck Pt.	8/28/01	22	wet		
035-03.0	E. Long Neck Pt.	8/30/01	2	dry		
035-03.0	E. Long Neck Pt.	9/24/01	2	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-03.0	E. Long Neck Pt.	5/22/02	2	dry	6	19
035-03.0	E. Long Neck Pt.	6/11/02	2	wet		
035-03.0	E. Long Neck Pt.	6/17/02	8	dry		
035-03.0	E. Long Neck Pt.	9/3/02	36	wet		
035-03.0	E. Long Neck Pt.	9/4/02	51	wet		
035-03.0	E. Long Neck Pt.	9/30/02	4	dry		
035-03.0	E. Long Neck Pt.	10/28/02	2	wet		
035-03.0	E. Long Neck Pt.	6/11/03	4	dry	3	NA
035-03.0	E. Long Neck Pt.	8/18/03	2	wet		
035-03.0	E. Long Neck Pt.	10/1/03	4	dry		
035-03.0	E. Long Neck Pt.	10/2/03	4	dry		
035-03.0	E. Long Neck Pt.	7/7/04	2	wet	2	NA
035-03.0	E. Long Neck Pt.	8/9/04	2	dry		
035-03.0	E. Long Neck Pt.	9/13/04	2	wet		
035-03.0	E. Long Neck Pt.	9/21/04	6	wet		
035-03.0	E. Long Neck Pt.	8/16/05	25	wet	NA	NA
035-03.0	E. Long Neck Pt.	7/17/06	1	dry	3	NA
035-03.0	E. Long Neck Pt.	8/31/06	19	wet		
035-03.0	E. Long Neck Pt.	10/16/06	2	dry		
035-03.0	E. Long Neck Pt.	11/1/06	3	wet		
035-03.0	E. Long Neck Pt.	11/27/06	1	dry		
035-03.0	E. Long Neck Pt.	5/1/07	1	wet	3	NA
035-03.0	E. Long Neck Pt.	6/5/07	81	wet		
035-03.0	E. Long Neck Pt.	6/7/07	1	wet		
035-03.0	E. Long Neck Pt.	7/24/07	1	wet		
035-03.0	E. Long Neck Pt.	8/8/07	1	wet		
035-03.0	E. Long Neck Pt.	8/23/07	1	wet		
035-03.0	E. Long Neck Pt.	9/12/07	4	wet		
035-03.0	E. Long Neck Pt.	10/15/07	20	wet		
035-03.0	E. Long Neck Pt.	10/22/07	1	wet		
035-03.0	E. Long Neck Pt.	10/31/07	3	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-03.0	E. Long Neck Pt.	2/4/08	1	dry	2	NA
035-03.0	E. Long Neck Pt.	7/28/08	1	dry		
035-03.0	E. Long Neck Pt.	8/5/08	1	dry		
035-03.0	E. Long Neck Pt.	9/10/08	7	wet		
035-03.0	E. Long Neck Pt.	12/16/08	2	wet		
035-03.0	E. Long Neck Pt.	4/2/09	1	dry	1	NA
035-03.0	E. Long Neck Pt.	4/22/09	2	wet		
035-03.0	E. Long Neck Pt.	6/11/09	2	wet		
035-03.0	E. Long Neck Pt.	6/23/09	1	wet		
035-03.0	E. Long Neck Pt.	7/23/09	2	wet		
035-03.0	E. Long Neck Pt.	8/3/09	1	wet		
035-03.0	E. Long Neck Pt.	8/27/09	1	dry		
035-03.0	E. Long Neck Pt.	8/31/09	1	wet		
035-03.0	E. Long Neck Pt.	3/2/10	1	wet	1	NA
035-03.0	E. Long Neck Pt.	3/17/10	1	wet		
035-03.0	E. Long Neck Pt.	3/25/10	1	wet		
035-03.0	E. Long Neck Pt.	5/5/10	3	wet		
035-03.0	E. Long Neck Pt.	5/20/10	1	wet		
035-03.0	E. Long Neck Pt.	6/23/10	3	wet		
035-03.0	E. Long Neck Pt.	8/17/10	1	wet		
035-03.0	E. Long Neck Pt.	9/29/10	1	wet		
035-03.0	E. Long Neck Pt.	12/13/10	3	wet		
035-03.0	E. Long Neck Pt.	3/14/11	1	dry	1	NA
035-03.0	E. Long Neck Pt.	4/26/11	1	dry		
035-03.0	E. Long Neck Pt.	6/27/11	1	dry		
035-04.0	SE Hay Island	4/24/00	2	wet	2	NA
035-04.0	SE Hay Island	5/15/00	2	wet		
035-04.0	SE Hay Island	5/25/00	11	wet		
035-04.0	SE Hay Island	6/21/00	2	dry		
035-04.0	SE Hay Island	7/18/00	2	dry		
035-04.0	SE Hay Island	7/19/00	2	dry		
035-04.0	SE Hay Island	9/13/00	4	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.0	SE Hay Island	5/29/01	8	dry	5	6
035-04.0	SE Hay Island	6/20/01	2	wet		
035-04.0	SE Hay Island	8/15/01	2	wet		
035-04.0	SE Hay Island	8/28/01	36	wet		
035-04.0	SE Hay Island	8/30/01	4	dry		
035-04.0	SE Hay Island	9/24/01	4	wet		
035-04.0	SE Hay Island	5/22/02	2	dry	5	19
035-04.0	SE Hay Island	6/11/02	2	wet		
035-04.0	SE Hay Island	6/17/02	4	dry		
035-04.0	SE Hay Island	9/3/02	50	wet		
035-04.0	SE Hay Island	9/4/02	50	wet		
035-04.0	SE Hay Island	9/30/02	2	dry		
035-04.0	SE Hay Island	10/28/02	2	wet		
035-04.0	SE Hay Island	6/11/03	4	dry	4	NA
035-04.0	SE Hay Island	8/18/03	8	wet		
035-04.0	SE Hay Island	10/1/03	4	dry		
035-04.0	SE Hay Island	10/2/03	4	dry		
035-04.0	SE Hay Island	7/7/04	2	wet	2	NA
035-04.0	SE Hay Island	8/9/04	2	dry		
035-04.0	SE Hay Island	9/13/04	2	wet		
035-04.0	SE Hay Island	9/21/04	6	wet		
035-04.0	SE Hay Island	8/16/05	32	wet	NA	90
035-04.0	SE Hay Island	7/17/06	1	dry	4	10
035-04.0	SE Hay Island	8/31/06	33	wet		
035-04.0	SE Hay Island	10/16/06	1	dry		
035-04.0	SE Hay Island	11/1/06	2	wet		
035-04.0	SE Hay Island	11/27/06	8	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.0	SE Hay Island	5/1/07	1	wet	4	NA
035-04.0	SE Hay Island	6/5/07	81	wet		
035-04.0	SE Hay Island	6/7/07	1	wet		
035-04.0	SE Hay Island	7/24/07	9	wet		
035-04.0	SE Hay Island	8/8/07	29	wet		
035-04.0	SE Hay Island	8/23/07	1	wet		
035-04.0	SE Hay Island	9/13/07	2	wet		
035-04.0	SE Hay Island	10/15/07	11	wet		
035-04.0	SE Hay Island	10/22/07	1	wet		
035-04.0	SE Hay Island	10/31/07	4	dry		
035-04.0	SE Hay Island	2/4/08	1	dry	2	NA
035-04.0	SE Hay Island	7/28/08	1	dry		
035-04.0	SE Hay Island	8/5/08	3	dry		
035-04.0	SE Hay Island	9/10/08	4	wet		
035-04.0	SE Hay Island	12/15/08	2	wet		
035-04.0	SE Hay Island	4/2/09	1	dry	2	NA
035-04.0	SE Hay Island	4/22/09	4	wet		
035-04.0	SE Hay Island	6/11/09	3	wet		
035-04.0	SE Hay Island	6/23/09	10	wet		
035-04.0	SE Hay Island	6/29/09	1	dry		
035-04.0	SE Hay Island	7/23/09	5	wet		
035-04.0	SE Hay Island	8/3/09	3	wet		
035-04.0	SE Hay Island	8/27/09	1	dry		
035-04.0	SE Hay Island	8/31/09	1	wet		
035-04.0	SE Hay Island	9/15/09	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.0	SE Hay Island	3/2/10	1	wet	2	NA
035-04.0	SE Hay Island	3/17/10	1	wet		
035-04.0	SE Hay Island	3/25/10	1	wet		
035-04.0	SE Hay Island	5/5/10	1	wet		
035-04.0	SE Hay Island	5/20/10	7	wet		
035-04.0	SE Hay Island	6/23/10	1	wet		
035-04.0	SE Hay Island	8/17/10	1	wet		
035-04.0	SE Hay Island	9/29/10	15	wet		
035-04.0	SE Hay Island	12/13/10	9	wet		
035-04.0	SE Hay Island	3/14/11	1	dry	1	NA
035-04.0	SE Hay Island	4/26/11	1	dry		
035-04.0	SE Hay Island	6/27/11	1	dry		
035-04.1	S. Great Island	4/24/00	2	wet	5	NA
035-04.1	S. Great Island	5/15/00	2	wet		
035-04.1	S. Great Island	5/25/00	22	wet		
035-04.1	S. Great Island	6/21/00	6	dry		
035-04.1	S. Great Island	7/18/00	6	dry		
035-04.1	S. Great Island	7/19/00	11	dry		
035-04.1	S. Great Island	9/13/00	4	wet		
035-04.1	S. Great Island	5/29/01	11	dry	11	**23**
035-04.1	S. Great Island	6/20/01	6	wet		
035-04.1	S. Great Island	8/15/01	8	wet		
035-04.1	S. Great Island	8/28/01	51	wet		
035-04.1	S. Great Island	8/30/01	2	dry		
035-04.1	S. Great Island	9/24/01	51	wet		
035-04.1	S. Great Island	5/22/02	2	dry	6	19
035-04.1	S. Great Island	6/11/02	2	wet		
035-04.1	S. Great Island	6/17/02	11	dry		
035-04.1	S. Great Island	9/3/02	51	wet		
035-04.1	S. Great Island	9/4/02	51	wet		
035-04.1	S. Great Island	9/30/02	2	dry		
035-04.1	S. Great Island	10/28/02	2	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.1	S. Great Island	6/11/03	8	dry	9	NA
035-04.1	S. Great Island	8/18/03	18	wet		
035-04.1	S. Great Island	10/1/03	8	dry		
035-04.1	S. Great Island	10/2/03	6	dry		
035-04.1	S. Great Island	7/7/04	2	wet	4	NA
035-04.1	S. Great Island	8/9/04	2	dry		
035-04.1	S. Great Island	9/13/04	6	wet		
035-04.1	S. Great Island	9/21/04	22	wet		
035-04.1	S. Great Island	8/16/05	47	wet	NA	90
035-04.1	S. Great Island	7/17/06	2	dry	3	10
035-04.1	S. Great Island	8/31/06	37	wet		
035-04.1	S. Great Island	10/16/06	1	dry		
035-04.1	S. Great Island	11/1/06	2	wet		
035-04.1	S. Great Island	11/27/06	3	dry		
035-04.1	S. Great Island	5/1/07	1	wet	7	10
035-04.1	S. Great Island	6/5/07	81	wet		
035-04.1	S. Great Island	6/7/07	2	wet		
035-04.1	S. Great Island	7/24/07	8	wet		
035-04.1	S. Great Island	8/8/07	81	wet		
035-04.1	S. Great Island	8/23/07	1	wet		
035-04.1	S. Great Island	9/13/07	4	wet		
035-04.1	S. Great Island	10/15/07	20	wet		
035-04.1	S. Great Island	10/22/07	3	wet		
035-04.1	S. Great Island	10/31/07	7	dry		
035-04.1	S. Great Island	2/4/08	1	dry	2	NA
035-04.1	S. Great Island	7/28/08	2	dry		
035-04.1	S. Great Island	8/5/08	6	dry		
035-04.1	S. Great Island	9/10/08	2	wet		
035-04.1	S. Great Island	12/15/08	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.1	S. Great Island	4/2/09	1	dry	2	NA
035-04.1	S. Great Island	4/22/09	3	wet		
035-04.1	S. Great Island	6/11/09	8	wet		
035-04.1	S. Great Island	6/23/09	4	wet		
035-04.1	S. Great Island	6/29/09	2	dry		
035-04.1	S. Great Island	7/23/09	14	wet		
035-04.1	S. Great Island	8/3/09	1	wet		
035-04.1	S. Great Island	8/27/09	1	dry		
035-04.1	S. Great Island	8/31/09	1	wet		
035-04.1	S. Great Island	9/15/09	1	dry		
035-04.1	S. Great Island	3/2/10	1	wet	3	1
035-04.1	S. Great Island	3/17/10	1	wet		
035-04.1	S. Great Island	3/25/10	9	wet		
035-04.1	S. Great Island	5/5/10	1	wet		
035-04.1	S. Great Island	5/20/10	7	wet		
035-04.1	S. Great Island	6/23/10	1	wet		
035-04.1	S. Great Island	8/17/10	1	wet		
035-04.1	S. Great Island	9/29/10	30	wet		
035-04.1	S. Great Island	12/13/10	32	wet		
035-04.1	S. Great Island	3/14/11	1	dry	1	NA
035-04.1	S. Great Island	4/26/11	1	dry		
035-04.1	S. Great Island	6/27/11	1	dry		
035-04.2	Scott Cove	4/24/00	4	wet	5	NA
035-04.2	Scott Cove	5/15/00	4	wet		
035-04.2	Scott Cove	5/25/00	22	wet		
035-04.2	Scott Cove	6/21/00	2	dry		
035-04.2	Scott Cove	7/18/00	4	dry		
035-04.2	Scott Cove	7/19/00	4	dry		
035-04.2	Scott Cove	9/13/00	14	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.2	Scott Cove	5/29/01	18	dry	**19* (26%)**	6
035-04.2	Scott Cove	6/20/01	8	wet		
035-04.2	Scott Cove	8/15/01	28	wet		
035-04.2	Scott Cove	8/28/01	51	wet		
035-04.2	Scott Cove	8/30/01	8	dry		
035-04.2	Scott Cove	9/24/01	28	wet		
035-04.2	Scott Cove	5/22/02	2	dry	9	19
035-04.2	Scott Cove	6/11/02	8	wet		
035-04.2	Scott Cove	6/17/02	14	dry		
035-04.2	Scott Cove	9/3/02	51	wet		
035-04.2	Scott Cove	9/4/02	51	wet		
035-04.2	Scott Cove	9/30/02	2	dry		
035-04.2	Scott Cove	10/28/02	6	wet		
035-04.2	Scott Cove	6/11/03	4	dry	4	NA
035-04.2	Scott Cove	8/18/03	14	wet		
035-04.2	Scott Cove	10/1/03	4	dry		
035-04.2	Scott Cove	10/2/03	2	dry		
035-04.2	Scott Cove	7/7/04	4	wet	7	15
035-04.2	Scott Cove	8/9/04	2	dry		
035-04.2	Scott Cove	9/13/04	6	wet		
035-04.2	Scott Cove	9/21/04	51	wet		
035-04.2	Scott Cove	8/16/05	36	wet	NA	90
035-04.2	Scott Cove	7/17/06	7	dry	7	10
035-04.2	Scott Cove	8/31/06	81	wet		
035-04.2	Scott Cove	10/16/06	1	dry		
035-04.2	Scott Cove	11/1/06	3	wet		
035-04.2	Scott Cove	11/27/06	11	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.2	Scott Cove	5/1/07	1	wet	7	10
035-04.2	Scott Cove	6/5/07	81	wet		
035-04.2	Scott Cove	6/7/07	3	wet		
035-04.2	Scott Cove	7/24/07	6	wet		
035-04.2	Scott Cove	8/8/07	81	wet		
035-04.2	Scott Cove	8/23/07	1	wet		
035-04.2	Scott Cove	9/13/07	4	wet		
035-04.2	Scott Cove	10/15/07	12	wet		
035-04.2	Scott Cove	10/22/07	8	wet		
035-04.2	Scott Cove	10/31/07	3	dry		
035-04.2	Scott Cove	2/4/08	2	dry	5	NA
035-04.2	Scott Cove	7/28/08	5	dry		
035-04.2	Scott Cove	8/5/08	10	dry		
035-04.2	Scott Cove	9/10/08	10	wet		
035-04.2	Scott Cove	12/15/08	2	wet		
035-04.2	Scott Cove	4/2/09	1	dry	4	NA
035-04.2	Scott Cove	4/22/09	4	wet		
035-04.2	Scott Cove	6/11/09	16	wet		
035-04.2	Scott Cove	6/23/09	15	wet		
035-04.2	Scott Cove	6/29/09	12	dry		
035-04.2	Scott Cove	7/23/09	29	wet		
035-04.2	Scott Cove	8/3/09	1	wet		
035-04.2	Scott Cove	8/27/09	1	dry		
035-04.2	Scott Cove	8/31/09	1	wet		
035-04.2	Scott Cove	9/15/09	3	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.2	Scott Cove	3/2/10	1	wet	4	12
035-04.2	Scott Cove	3/17/10	1	wet		
035-04.2	Scott Cove	3/25/10	1	wet		
035-04.2	Scott Cove	5/5/10	1	wet		
035-04.2	Scott Cove	5/20/10	8	wet		
035-04.2	Scott Cove	6/23/10	10	wet		
035-04.2	Scott Cove	8/17/10	1	wet		
035-04.2	Scott Cove	9/29/10	41	wet		
035-04.2	Scott Cove	12/13/10	36	wet		
035-04.2	Scott Cove	4/26/11	1	dry	1	NA
035-04.2	Scott Cove	6/27/11	2	dry		
035-04.3	Sargents Cove	4/22/09	1	wet	3	1
035-04.3	Sargents Cove	6/11/09	8	wet		
035-04.3	Sargents Cove	7/23/09	32	wet		
035-04.3	Sargents Cove	8/27/09	2	dry		
035-04.3	Sargents Cove	8/31/09	1	wet		
035-04.3	Sargents Cove	9/15/09	2	dry		
035-04.3	Sargents Cove	11/16/09	2	wet		
035-04.3	Sargents Cove	3/17/10	1	wet	3	NA
035-04.3	Sargents Cove	3/25/10	4	wet		
035-04.3	Sargents Cove	5/5/10	1	wet		
035-04.3	Sargents Cove	5/20/10	4	wet		
035-04.3	Sargents Cove	6/23/10	6	wet		
035-04.3	Sargents Cove	8/17/10	3	wet		
035-04.3	Sargents Cove	9/29/10	8	wet		
035-04.3	Sargents Cove	12/13/10	16	wet		
035-04.3	Sargents Cove	12/16/10	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-04.3	Sargents Cove	3/14/11	1	dry	3	NA
035-04.3	Sargents Cove	4/26/11	2	dry		
035-04.3	Sargents Cove	5/23/11	23	wet		
035-04.3	Sargents Cove	6/20/11	8	wet		
035-04.3	Sargents Cove	6/27/11	1	dry		
035-04.3	Sargents Cove	7/21/11	4	dry		
035-04.5	Scotts Cove	3/30/09	40	wet	NA	90

Shaded cells indicate an exceedance of water quality criteria

†Average of two duplicate samples

**** Weather conditions for selected data taken from Hartford because local station had missing data**

***Indicates geometric mean and 90% less than values used to calculate the percent reduction**

Wet and dry weather fecal coliform (colonies/100 mL) geometric mean values for all monitoring stations on Segment 2: LIS WB Shore – Scott Cove (CT-W2_016)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
035-03.0	E. Long Neck Pt.	2000-2011	46	24	2	3	2
035-04.0	SE Hay Island	2000-2011	45	26	3	4	2
035-04.1	S. Great Island	2000-2011	45	26	4	6	3
035-04.2	Scott Cove	2000-2011	45	25	6	8	3
035-04.3	Sargents Cove	2009-2011	15	7	3	4	2
035-04.5	Scotts Cove	2009	1	0	NA	NA	NA

Shaded cells indicate an exceedance of water quality criteria

Table 16: Segment 3: LIS WB Shore – Darien Cove Bacteria Data

Waterbody ID: CT-W2_017

Characteristics: Saltwater, Class SA, Shellfishing Harvesting for Direct Human Consumption, Recreation, Habitat for Marine Fish and other Aquatic Life and Wildlife, Industrial Water Supply, and Navigation

Impairment: Shellfish harvesting (*fecal coliform bacteria)*

Water Quality Criteria for fecal coliform:

Geometric Mean: 14 colonies/100 mL

$90^{\%}$ of samples less than: 31 colonies/100 mL

Percent Reduction to meet TMDL:

Geometric Mean: **NA**

$90^{\%}$ of samples less than: **56%**

Data: 2000 - 2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 3: LIS WB Shore – Darien Cove (CT-W2_017) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.1	Mouth Goodwives River	4/24/00	22	wet	12	23
035-02.1	Mouth Goodwives River	5/25/00	51	wet		
035-02.1	Mouth Goodwives River	6/21/00	4	dry		
035-02.1	Mouth Goodwives River	7/18/00	2	dry		
035-02.1	Mouth Goodwives River	7/19/00	8	dry		
035-02.1	Mouth Goodwives River	9/13/00	50	wet		
035-02.1	Mouth Goodwives River	5/29/01	4	dry	17	23
035-02.1	Mouth Goodwives River	6/20/01	28	wet		
035-02.1	Mouth Goodwives River	8/15/01	22	wet		
035-02.1	Mouth Goodwives River	8/28/01	51	wet		
035-02.1	Mouth Goodwives River	8/30/01	4	dry		
035-02.1	Mouth Goodwives River	9/24/01	51	wet		
035-02.1	Mouth Goodwives River	6/11/02	2	wet	4	NA
035-02.1	Mouth Goodwives River	9/30/02	2	dry		
035-02.1	Mouth Goodwives River	10/28/02	18	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 3: LIS WB Shore – Darien Cove (CT-W2_017) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.1	Mouth Goodwives River	8/18/03	50	wet	33	**56**
035-02.1	Mouth Goodwives River	10/1/03	14	dry		
035-02.1	Mouth Goodwives River	10/2/03	51	dry		
035-02.1	Mouth Goodwives River	7/7/04	2	wet	10	15
035-02.1	Mouth Goodwives River	8/9/04	6	dry		
035-02.1	Mouth Goodwives River	9/13/04	18	wet		
035-02.1	Mouth Goodwives River	9/21/04	51	wet		
035-02.1	Mouth Goodwives River	8/16/05	81	wet	NA	90
035-02.1	Mouth Goodwives River	7/17/06	13	dry	12	15
035-02.1	Mouth Goodwives River	10/16/06	2	dry		
035-02.1	Mouth Goodwives River	11/1/06	34	wet		
035-02.1	Mouth Goodwives River	11/27/06	26	dry		
035-02.1	Mouth Goodwives River	7/24/07	92	wet	**56* (75%)**	50
035-02.1	Mouth Goodwives River	8/23/07	81	wet		
035-02.1	Mouth Goodwives River	10/15/07	171	wet		
035-02.1	Mouth Goodwives River	10/22/07	17	wet		
035-02.1	Mouth Goodwives River	10/31/07	25	dry		
035-02.1	Mouth Goodwives River	2/4/08	12	dry	12	10
035-02.1	Mouth Goodwives River	7/28/08	8	dry		
035-02.1	Mouth Goodwives River	8/5/08	12	dry		
035-02.1	Mouth Goodwives River	9/10/08	81	wet		
035-02.1	Mouth Goodwives River	12/23/08	3	wet		
035-02.1	Mouth Goodwives River	4/2/09	1	dry	7	4
035-02.1	Mouth Goodwives River	4/22/09	30	wet		
035-02.1	Mouth Goodwives River	6/11/09	60	wet		
035-02.1	Mouth Goodwives River	7/23/09	12	wet		
035-02.1	Mouth Goodwives River	8/3/09	9	wet		
035-02.1	Mouth Goodwives River	8/27/09	1	dry		
035-02.1	Mouth Goodwives River	8/31/09	4	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 3: LIS WB Shore – Darien Cove (CT-W2_017) with annual geometric means and reduction goals

Station Name	Station Location	Date	Result	Wet/ Dry	Geo Mean	Reduction of Exceeding Samples
035-02.1	Mouth Goodwives River	3/25/10	30	wet	40	73
035-02.1	Mouth Goodwives River	5/5/10	35	wet		
035-02.1	Mouth Goodwives River	5/20/10	43	wet		
035-02.1	Mouth Goodwives River	6/23/10	57	wet		
035-02.1	Mouth Goodwives River	8/17/10	32	wet		
035-02.1	Mouth Goodwives River	9/29/10	53	wet		
035-02.8	Goodwives River Mooring Area	4/2/09	1	dry	3	NA
035-02.8	Goodwives River Mooring Area	4/22/09	21	wet		
035-02.8	Goodwives River Mooring Area	6/11/09	28	wet		
035-02.8	Goodwives River Mooring Area	7/23/09	6	wet		
035-02.8	Goodwives River Mooring Area	8/3/09	1	wet		
035-02.8	Goodwives River Mooring Area	8/27/09	2	dry		
035-02.8	Goodwives River Mooring Area	8/31/09	1	wet		
035-02.8	Goodwives River Mooring Area	9/15/09	2	dry		
035-02.8	Goodwives River Mooring Area	11/16/09	1	wet		
035-02.8	Goodwives River Mooring Area	5/5/10	29	wet	31	30
035-02.8	Goodwives River Mooring Area	5/20/10	21	wet		
035-02.8	Goodwives River Mooring Area	6/23/10	36	wet		
035-02.8	Goodwives River Mooring Area	8/17/10	50	wet		
035-02.8	Goodwives River Mooring Area	9/29/10	25	wet		
035-02.8	Goodwives River Mooring Area	3/14/11	1	dry	2	NA
035-02.8	Goodwives River Mooring Area	4/26/11	1	dry		
035-02.8	Goodwives River Mooring Area	6/27/11	1	dry		
035-02.8	Goodwives River Mooring Area	7/21/11	9	dry		
135-11.0	near Nat Clocks Rock	2/3/00	4	dry	4	NA
135-11.0	near Nat Clocks Rock	2/23/00	4	dry		
135-11.0	near Nat Clocks Rock	5/30/01	2	dry	2	NA
135-11.0	near Nat Clocks Rock	6/26/01	2[†]	dry		
135-11.0	near Nat Clocks Rock	10/4/01	4	dry		
135-11.0	near Nat Clocks Rock	1/10/02	14	dry	5	NA
135-11.0	near Nat Clocks Rock	1/23/02	2	wet		
135-11.0	near Nat Clocks Rock	8/18/03	28	wet	NA	NA

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 3: LIS WB Shore – Darien Cove (CT-W2_017) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
135-11.0	near Nat Clocks Rock	3/2/04	2	wet	2	NA
135-11.0	near Nat Clocks Rock	9/13/04	2	wet		
135-11.0	near Nat Clocks Rock	8/16/05	29	wet	NA	NA
135-11.0	near Nat Clocks Rock	2/23/06	1	wet	2	NA
135-11.0	near Nat Clocks Rock	7/17/06	9	dry		
135-11.0	near Nat Clocks Rock	7/26/06	2	dry		
135-11.0	near Nat Clocks Rock	10/11/06	1	wet		
135-11.0	near Nat Clocks Rock	1/3/07	1	wet	NA	NA
135-11.0	near Nat Clocks Rock	5/27/08	1	wet	NA	NA
135-11.0	near Nat Clocks Rock	4/22/09	11	wet	4	NA
135-11.0	near Nat Clocks Rock	7/22/09	1	wet		
135-11.0	near Nat Clocks Rock	7/28/09	6	dry		
135-11.0	near Nat Clocks Rock	8/4/09	1	dry		
135-11.0	near Nat Clocks Rock	8/25/09	18	wet		
135-11.0	near Nat Clocks Rock	10/20/09	6	wet		
135-11.0	near Nat Clocks Rock	12/15/09	1	wet		
135-11.0	near Nat Clocks Rock	1/27/10	1	wet	2	NA
135-11.0	near Nat Clocks Rock	3/25/10	1	wet		
135-11.0	near Nat Clocks Rock	5/5/10	2	wet		
135-11.0	near Nat Clocks Rock	5/20/10	2	wet		
135-11.0	near Nat Clocks Rock	6/23/10	20	wet		
135-11.0	near Nat Clocks Rock	4/26/11	3	dry	3	NA
135-11.0	near Nat Clocks Rock	6/9/11	3	wet		

Shaded cells indicate an exceedance of water quality criteria

†Average of two duplicate samples

**** Weather conditions for selected data taken from Hartford because local station had missing data**

***Indicates geometric mean and 90% less than values used to calculate the percent reduction**

Wet and dry weather fecal coliform (colonies/100 mL) geometric mean values for all monitoring stations on Segment 3: LIS WB Shore – Darien Cove (CT-W2_017)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
135-11.0	near Nat Clocks Rock	2000-2011	20	12	3	3	3
035-02.1	Mouth Goodwives River	2000-2011	32	18	16	27	6
035-02.8	Goodwives River Mooring Area	2009-2011	11	7	5	10	2
Shaded cells indicate an exceedance of water quality criteria							

Table 17: Segment 4: LIS WB Midshore – Outer Fivemile River Estuary Bacteria Data

Waterbody ID: CT-W3_009

Characteristics: Saltwater, Class SA, Shellfishing Harvesting for Direct Human Consumption, Recreation, Habitat for Marine Fish and other Aquatic Life and Wildlife, Industrial Water Supply, and Navigation

Impairment: Shellfish harvesting (*fecal coliform bacteria)*

Water Quality Criteria for fecal coliform:

Geometric Mean: 14 colonies/100 mL

90% of samples less than: 31 colonies/100 mL

Percent Reduction to meet TMDL:

Geometric Mean: **NA**

$90^{\%}$ of samples less than: **40%**

Data: 2000 – 2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-05.0	SE Fish Island	2/16/00	2	wet	3	3
035-05.0	SE Fish Island	4/24/00	2	wet		
035-05.0	SE Fish Island	5/15/00	4	wet		
035-05.0	SE Fish Island	5/25/00	2	wet		
035-05.0	SE Fish Island	6/21/00	2	dry		
035-05.0	SE Fish Island	7/18/00	8	dry		
035-05.0	SE Fish Island	7/19/00	36	dry		
035-05.0	SE Fish Island	9/13/00	2	wet		
035-05.0	SE Fish Island	1/23/01	2	dry	5	6
035-05.0	SE Fish Island	4/2/01	6	wet		
035-05.0	SE Fish Island	6/20/01	6	wet		
035-05.0	SE Fish Island	8/28/01	51	wet		
035-05.0	SE Fish Island	8/30/01	2	dry		
035-05.0	SE Fish Island	9/24/01	6	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-05.0	SE Fish Island	5/22/02	2	dry	7	19
035-05.0	SE Fish Island	6/11/02	4	wet		
035-05.0	SE Fish Island	6/17/02	8	dry		
035-05.0	SE Fish Island	9/3/02	36	wet		
035-05.0	SE Fish Island	9/4/02	51	wet		
035-05.0	SE Fish Island	9/30/02	2	dry		
035-05.0	SE Fish Island	10/28/02	4	wet		
035-05.0	SE Fish Island	2/26/03	2	wet	2	NA
035-05.0	SE Fish Island	6/11/03	2	dry		
035-05.0	SE Fish Island	8/18/03	2	wet		
035-05.0	SE Fish Island	10/1/03	4	dry		
035-05.0	SE Fish Island	10/2/03	2	dry		
035-05.0	SE Fish Island	7/7/04	2	wet	3	NA
035-05.0	SE Fish Island	8/9/04	2	dry		
035-05.0	SE Fish Island	9/13/04	2	wet		
035-05.0	SE Fish Island	9/21/04	14	wet		
035-05.0	SE Fish Island	8/16/05	34	wet	NA	90
035-05.0	SE Fish Island	7/17/06	1	dry	4	10
035-05.0	SE Fish Island	8/31/06	39	wet		
035-05.0	SE Fish Island	10/16/06	3	dry		
035-05.0	SE Fish Island	11/1/06	5	wet		
035-05.0	SE Fish Island	11/27/06	3	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-05.0	SE Fish Island	3/5/07	3	wet	3	NA
035-05.0	SE Fish Island	5/1/07	1	wet		
035-05.0	SE Fish Island	6/5/07	81	wet		
035-05.0	SE Fish Island	6/7/07	3	wet		
035-05.0	SE Fish Island	7/24/07	3	wet		
035-05.0	SE Fish Island	8/8/07	1	wet		
035-05.0	SE Fish Island	8/23/07	1	wet		
035-05.0	SE Fish Island	9/13/07	1	wet		
035-05.0	SE Fish Island	10/15/07	27	wet		
035-05.0	SE Fish Island	10/22/07	2	wet		
035-05.0	SE Fish Island	10/31/07	2	dry		
035-05.0	SE Fish Island	2/4/08	1	dry	2	NA
035-05.0	SE Fish Island	7/28/08	1	dry		
035-05.0	SE Fish Island	8/5/08	5	dry		
035-05.0	SE Fish Island	9/10/08	4	wet		
035-05.0	SE Fish Island	12/15/08	1	wet		
035-05.0	SE Fish Island	12/16/08	1	wet		
035-05.0	SE Fish Island	4/2/09	1	dry	3	NA
035-05.0	SE Fish Island	4/22/09	4	wet		
035-05.0	SE Fish Island	6/11/09	17	wet		
035-05.0	SE Fish Island	6/23/09	4	wet		
035-05.0	SE Fish Island	6/29/09	4	dry		
035-05.0	SE Fish Island	7/23/09	19	wet		
035-05.0	SE Fish Island	8/3/09	2	wet		
035-05.0	SE Fish Island	8/27/09	1	dry		
035-05.0	SE Fish Island	8/31/09	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-05.0	SE Fish Island	3/2/10	1	wet	3	NA
035-05.0	SE Fish Island	3/17/10	1	wet		
035-05.0	SE Fish Island	3/25/10	1	wet		
035-05.0	SE Fish Island	5/5/10	4	wet		
035-05.0	SE Fish Island	5/20/10	2	wet		
035-05.0	SE Fish Island	6/23/10	2	wet		
035-05.0	SE Fish Island	8/17/10	5	wet		
035-05.0	SE Fish Island	9/29/10	14	wet		
035-05.0	SE Fish Island	12/13/10	6	wet		
035-05.0	SE Fish Island	3/14/11	1	dry	1	NA
035-05.0	SE Fish Island	4/26/11	1	dry		
035-05.0	SE Fish Island	6/27/11	1	dry		
035-06.0	S. C"1" - S Butlers Island	2/16/00	2	wet	3	NA
035-06.0	S. C"1" - S Butlers Island	4/24/00	2	wet		
035-06.0	S. C"1" - S Butlers Island	5/15/00	2	wet		
035-06.0	S. C"1" - S Butlers Island	5/25/00	2	wet		
035-06.0	S. C"1" - S Butlers Island	6/21/00	2	dry		
035-06.0	S. C"1" - S Butlers Island	7/18/00	22	dry		
035-06.0	S. C"1" - S Butlers Island	7/19/00	11	dry		
035-06.0	S. C"1" - S Butlers Island	9/13/00	2	wet		
035-06.0	S. C"1" - S Butlers Island	1/23/01	2	dry	3	4
035-06.0	S. C"1" - S Butlers Island	4/2/01	2	wet		
035-06.0	S. C"1" - S Butlers Island	6/20/01	2	wet		
035-06.0	S. C"1" - S Butlers Island	8/15/01	2	wet		
035-06.0	S. C"1" - S Butlers Island	8/28/01	36	wet		
035-06.0	S. C"1" - S Butlers Island	8/30/01	2	dry		
035-06.0	S. C"1" - S Butlers Island	9/24/01	2	wet		

Single ample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-06.0	S. C"1" - S Butlers Island	5/22/02	2	dry	4	4
035-06.0	S. C"1" - S Butlers Island	6/11/02	2	wet		
035-06.0	S. C"1" - S Butlers Island	6/17/02	2	dry		
035-06.0	S. C"1" - S Butlers Island	9/3/02	51	wet		
035-06.0	S. C"1" - S Butlers Island	9/4/02	8	wet		
035-06.0	S. C"1" - S Butlers Island	9/30/02	2	dry		
035-06.0	S. C"1" - S Butlers Island	10/28/02	6	wet		
035-06.0	S. C"1" - S Butlers Island	2/26/03	2	wet	3	NA
035-06.0	S. C"1" - S Butlers Island	6/11/03	2	dry		
035-06.0	S. C"1" - S Butlers Island	8/18/03	22	wet		
035-06.0	S. C"1" - S Butlers Island	10/1/03	4	dry		
035-06.0	S. C"1" - S Butlers Island	10/2/03	2	dry		
035-06.0	S. C"1" - S Butlers Island	4/19/04	2	wet	3	NA
035-06.0	S. C"1" - S Butlers Island	7/7/04	2	wet		
035-06.0	S. C"1" - S Butlers Island	8/9/04	2	dry		
035-06.0	S. C"1" - S Butlers Island	9/13/04	2	wet		
035-06.0	S. C"1" - S Butlers Island	9/21/04	14	wet		
035-06.0	S. C"1" - S Butlers Island	8/16/05	54	wet	13	**40**
035-06.0	S. C"1" - S Butlers Island	10/26/05	3	wet		
035-06.0	S. C"1" - S Butlers Island	7/17/06	1	dry	3	NA
035-06.0	S. C"1" - S Butlers Island	8/31/06	27	wet		
035-06.0	S. C"1" - S Butlers Island	10/16/06	1	dry		
035-06.0	S. C"1" - S Butlers Island	11/1/06	1	wet		
035-06.0	S. C"1" - S Butlers Island	11/27/06	8	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-06.0	S. C"1" - S Butlers Island	3/5/07	1	wet	2	NA
035-06.0	S. C"1" - S Butlers Island	5/1/07	1	wet		
035-06.0	S. C"1" - S Butlers Island	6/5/07	71	wet		
035-06.0	S. C"1" - S Butlers Island	6/7/07	1	wet		
035-06.0	S. C"1" - S Butlers Island	7/24/07	1	wet		
035-06.0	S. C"1" - S Butlers Island	8/23/07	1	wet		
035-06.0	S. C"1" - S Butlers Island	9/13/07	1	wet		
035-06.0	S. C"1" - S Butlers Island	10/15/07	8	wet		
035-06.0	S. C"1" - S Butlers Island	10/22/07	1	wet		
035-06.0	S. C"1" - S Butlers Island	10/31/07	1	dry		
035-06.0	S. C"1" - S Butlers Island	2/4/08	2	dry	3	NA
035-06.0	S. C"1" - S Butlers Island	7/28/08	3	dry		
035-06.0	S. C"1" - S Butlers Island	8/5/08	4	dry		
035-06.0	S. C"1" - S Butlers Island	12/15/08	1	wet		
035-06.0	S. C"1" - S Butlers Island	12/16/08	15	wet		
035-06.0	S. C"1" - S Butlers Island	4/2/09	1	dry	2	NA
035-06.0	S. C"1" - S Butlers Island	4/22/09	4	wet		
035-06.0	S. C"1" - S Butlers Island	6/11/09	8	wet		
035-06.0	S. C"1" - S Butlers Island	6/23/09	1	wet		
035-06.0	S. C"1" - S Butlers Island	6/29/09	1	dry		
035-06.0	S. C"1" - S Butlers Island	7/23/09	1	wet		
035-06.0	S. C"1" - S Butlers Island	8/3/09	3	wet		
035-06.0	S. C"1" - S Butlers Island	8/27/09	1	dry		
035-06.0	S. C"1" - S Butlers Island	8/31/09	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore–Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-06.0	S. C"1" - S Butlers Island	3/2/10	1	wet	2	NA
035-06.0	S. C"1" - S Butlers Island	3/17/10	1	wet		
035-06.0	S. C"1" - S Butlers Island	3/25/10	1	wet		
035-06.0	S. C"1" - S Butlers Island	5/5/10	1	wet		
035-06.0	S. C"1" - S Butlers Island	5/20/10	1	wet		
035-06.0	S. C"1" - S Butlers Island	6/23/10	2	wet		
035-06.0	S. C"1" - S Butlers Island	8/17/10	1	wet		
035-06.0	S. C"1" - S Butlers Island	9/29/10	23	wet		
035-06.0	S. C"1" - S Butlers Island	12/13/10	7	wet		
035-06.0	S. C"1" - S Butlers Island	3/14/11	1	dry	1	NA
035-06.0	S. C"1" - S Butlers Island	4/26/11	1	dry		
035-06.0	S. C"1" - S Butlers Island	6/27/11	1	dry		
035-07.0	N. C"1" - S Butlers Island	2/16/00	2	wet	2	NA
035-07.0	N. C"1" - S Butlers Island	5/15/00	4	wet		
035-07.0	N. C"1" - S Butlers Island	5/25/00	4	wet		
035-07.0	N. C"1" - S Butlers Island	6/21/00	2	dry		
035-07.0	N. C"1" - S Butlers Island	8/7/00	2	dry		
035-07.0	N. C"1" - S Butlers Island	9/13/00	2	wet		
035-07.0	N. C"1" - S Butlers Island	1/23/01	2	dry	3	NA
035-07.0	N. C"1" - S Butlers Island	2/7/01	2	wet		
035-07.0	N. C"1" - S Butlers Island	6/26/01	2	dry		
035-07.0	N. C"1" - S Butlers Island	8/15/01	2	wet		
035-07.0	N. C"1" - S Butlers Island	8/28/01	22	wet		
035-07.0	N. C"1" - S Butlers Island	8/30/01	8	dry		
035-07.0	N. C"1" - S Butlers Island	1/9/02	2	dry	7	15
035-07.0	N. C"1" - S Butlers Island	9/3/02	51	wet		
035-07.0	N. C"1" - S Butlers Island	9/4/02	14	wet		
035-07.0	N. C"1" - S Butlers Island	10/28/02	2	wet		
035-07.0	N. C"1" - S Butlers Island	2/26/03	2	wet	4	15
035-07.0	N. C"1" - S Butlers Island	6/11/03	2	dry		
035-07.0	N. C"1" - S Butlers Island	8/18/03	36	wet		
035-07.0	N. C"1" - S Butlers Island	10/6/03	2	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-07.0	N. C"1" - S Butlers Island	4/19/04	2	wet	4	NA
035-07.0	N. C"1" - S Butlers Island	7/7/04	2	wet		
035-07.0	N. C"1" - S Butlers Island	8/23/04	18	wet		
035-07.0	N. C"1" - S Butlers Island	8/16/05	62	wet	NA	90
035-07.0	N. C"1" - S Butlers Island	7/9/07	1	dry	2	NA
035-07.0	N. C"1" - S Butlers Island	7/24/07	2	wet		
035-07.0	N. C"1" - S Butlers Island	8/8/07	15	wet		
035-07.0	N. C"1" - S Butlers Island	8/23/07	1	wet		
035-07.0	N. C"1" - S Butlers Island	9/13/07	4	wet		
035-07.0	N. C"1" - S Butlers Island	10/22/07	1	wet		
035-07.0	N. C"1" - S Butlers Island	10/31/07	2	dry		
035-07.0	N. C"1" - S Butlers Island	2/4/08	2	dry	3	3
035-07.0	N. C"1" - S Butlers Island	7/28/08	17	dry		
035-07.0	N. C"1" - S Butlers Island	8/5/08	1	dry		
035-07.0	N. C"1" - S Butlers Island	8/11/08	1	dry		
035-07.0	N. C"1" - S Butlers Island	9/10/08	40	wet		
035-07.0	N. C"1" - S Butlers Island	9/16/08	5	wet		
035-07.0	N. C"1" - S Butlers Island	12/15/08	1	wet		
035-07.0	N. C"1" - S Butlers Island	12/23/08	1	wet		
035-07.0	N. C"1" - S Butlers Island	4/2/09	1	dry	2	NA
035-07.0	N. C"1" - S Butlers Island	4/22/09	5	wet		
035-07.0	N. C"1" - S Butlers Island	6/11/09	17	wet		
035-07.0	N. C"1" - S Butlers Island	6/29/09	2	dry		
035-07.0	N. C"1" - S Butlers Island	7/23/09	12	wet		
035-07.0	N. C"1" - S Butlers Island	8/3/09	2	wet		
035-07.0	N. C"1" - S Butlers Island	8/27/09	5	dry		
035-07.0	N. C"1" - S Butlers Island	8/31/09	1	wet		
035-07.0	N. C"1" - S Butlers Island	9/15/09	1	dry		
035-07.0	N. C"1" - S Butlers Island	11/16/09	1	wet		
035-07.0	N. C"1" - S Butlers Island	12/15/09	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-07.0	N. C"1" - S Butlers Island	3/2/10	1	wet	3	NA
035-07.0	N. C"1" - S Butlers Island	3/17/10	1	wet		
035-07.0	N. C"1" - S Butlers Island	5/5/10	1	wet		
035-07.0	N. C"1" - S Butlers Island	5/20/10	5	wet		
035-07.0	N. C"1" - S Butlers Island	6/23/10	1	wet		
035-07.0	N. C"1" - S Butlers Island	8/17/10	7	wet		
035-07.0	N. C"1" - S Butlers Island	8/25/10	9	wet		
035-07.0	N. C"1" - S Butlers Island	9/29/10	12	wet		
035-07.0	N. C"1" - S Butlers Island	12/13/10	7	wet		
035-07.0	N. C"1" - S Butlers Island	12/16/10	5	dry		
035-07.0	N. C"1" - S Butlers Island	3/14/11	1	dry	2	NA
035-07.0	N. C"1" - S Butlers Island	4/26/11	1	dry		
035-07.0	N. C"1" - S Butlers Island	5/23/11	4	wet		
035-07.0	N. C"1" - S Butlers Island	6/20/11	1	wet		
035-07.0	N. C"1" - S Butlers Island	6/27/11	1	dry		
035-07.0	N. C"1" - S Butlers Island	7/21/11	6	dry		
103-02.0	S. Five Mile R. N"2"	2/16/00	2	wet	5	23
103-02.0	S. Five Mile R. N"2"	5/15/00	2	wet		
103-02.0	S. Five Mile R. N"2"	5/25/00	51	wet		
103-02.0	S. Five Mile R. N"2"	6/21/00	2	dry		
103-02.0	S. Five Mile R. N"2"	8/7/00	2	dry		
103-02.0	S. Five Mile R. N"2"	9/13/00	50	wet		
103-02.0	S. Five Mile R. N"2"	1/23/01	2	dry	5	6
103-02.0	S. Five Mile R. N"2"	2/2/01	2	dry		
103-02.0	S. Five Mile R. N"2"	2/7/01	2	wet		
103-02.0	S. Five Mile R. N"2"	8/15/01	4	wet		
103-02.0	S. Five Mile R. N"2"	8/28/01	51	wet		
103-02.0	S. Five Mile R. N"2"	8/30/01	14	dry		
103-02.0	S. Five Mile R. N"2"	1/9/02	11	dry	**15* (7%)**	**40**
103-02.0	S. Five Mile R. N"2"	9/3/02	51	wet		
103-02.0	S. Five Mile R. N"2"	9/4/02	51	wet		
103-02.0	S. Five Mile R. N"2"	10/28/02	2	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-02.0	S. Five Mile R. N"2"	2/26/03	2	wet		
103-02.0	S. Five Mile R. N"2"	4/30/03	2	dry		
103-02.0	S. Five Mile R. N"2"	6/11/03	28	dry	4	NA
103-02.0	S. Five Mile R. N"2"	8/6/03	2	wet		
103-02.0	S. Five Mile R. N"2"	8/18/03	8	wet		
103-02.0	S. Five Mile R. N"2"	8/23/04	50	wet	NA	90
103-02.0	S. Five Mile R. N"2"	8/16/05	49	wet	NA	90
103-02.0	S. Five Mile R. N"2"	9/6/06	1	dry	NA	NA
103-02.0	S. Five Mile R. N"2"	7/9/07	4	dry		
103-02.0	S. Five Mile R. N"2"	7/24/07	1	wet		
103-02.0	S. Five Mile R. N"2"	8/23/07	2	wet	2	NA
103-02.0	S. Five Mile R. N"2"	9/13/07	1	wet		
103-02.0	S. Five Mile R. N"2"	12/5/07	1	wet		
103-02.0	S. Five Mile R. N"2"	2/20/08	2	wet		
103-02.0	S. Five Mile R. N"2"	7/28/08	8	dry		
103-02.0	S. Five Mile R. N"2"	8/11/08	1	dry		
103-02.0	S. Five Mile R. N"2"	9/10/08	6	wet	2	NA
103-02.0	S. Five Mile R. N"2"	9/16/08	1	wet		
103-02.0	S. Five Mile R. N"2"	12/15/08	1	wet		
103-02.0	S. Five Mile R. N"2"	12/23/08	2	wet		
103-02.0	S. Five Mile R. N"2"	4/2/09	1	dry		
103-02.0	S. Five Mile R. N"2"	4/22/09	7	wet		
103-02.0	S. Five Mile R. N"2"	6/10/09	10	wet		
103-02.0	S. Five Mile R. N"2"	6/29/09	8	dry		
103-02.0	S. Five Mile R. N"2"	7/23/09	14	wet		
103-02.0	S. Five Mile R. N"2"	8/3/09	1	wet	3	NA
103-02.0	S. Five Mile R. N"2"	8/26/09	1	dry		
103-02.0	S. Five Mile R. N"2"	8/31/09	1	wet		
103-02.0	S. Five Mile R. N"2"	9/15/09	1	dry		
103-02.0	S. Five Mile R. N"2"	10/28/09	1	dry		
103-02.0	S. Five Mile R. N"2"	11/16/09	1	wet		
103-02.0	S. Five Mile R. N"2"	12/15/09	16	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/ Dry	Geo Mean	Reduction of Exceeding Samples
103-02.0	S. Five Mile R. N"2"	3/2/10	1	wet	9	23
103-02.0	S. Five Mile R. N"2"	3/17/10	1	wet		
103-02.0	S. Five Mile R. N"2"	5/4/10	71	wet		
103-02.0	S. Five Mile R. N"2"	5/19/10	1	wet		
103-02.0	S. Five Mile R. N"2"	6/23/10	53	wet		
103-02.0	S. Five Mile R. N"2"	8/17/10	13	wet		
103-02.0	S. Five Mile R. N"2"	8/25/10	9	wet		
103-02.0	S. Five Mile R. N"2"	12/13/10	81	wet		
103-02.0	S. Five Mile R. N"2"	12/16/10	9	dry		
103-02.0	S. Five Mile R. N"2"	4/19/11	1	wet	2	NA
103-02.0	S. Five Mile R. N"2"	4/26/11	1	dry		
103-02.0	S. Five Mile R. N"2"	5/23/11	12	wet		
103-02.0	S. Five Mile R. N"2"	6/20/11	2	wet		
103-02.0	S. Five Mile R. N"2"	6/27/11	1	dry		
103-02.0	S. Five Mile R. N"2"	7/21/11	5	dry		
103-03.0	S. Five Mile/N. Greens Ledge	2/16/00	2	wet	2	NA
103-03.0	S. Five Mile/N. Greens Ledge	4/24/00	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	5/15/00	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	5/25/00	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/21/00	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	7/18/00	4	dry		
103-03.0	S. Five Mile/N. Greens Ledge	7/19/00	4	dry		
103-03.0	S. Five Mile/N. Greens Ledge	9/13/00	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	1/23/01	2	dry	3	3
103-03.0	S. Five Mile/N. Greens Ledge	2/2/01	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	2/7/01	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/20/01	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	8/15/01	4	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/28/01	51	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/30/01	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	9/24/01	6	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-03.0	S. Five Mile/N. Greens Ledge	1/9/02	2	dry	3	3
103-03.0	S. Five Mile/N. Greens Ledge	5/22/02	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	6/11/02	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/17/02	4	dry		
103-03.0	S. Five Mile/N. Greens Ledge	9/3/02	51	wet		
103-03.0	S. Five Mile/N. Greens Ledge	9/4/02	4	wet		
103-03.0	S. Five Mile/N. Greens Ledge	9/30/02	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	10/28/02	4	wet		
103-03.0	S. Five Mile/N. Greens Ledge	2/26/03	2	wet	4	NA
103-03.0	S. Five Mile/N. Greens Ledge	4/30/03	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	6/2/03	18	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/6/03	51	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/11/03	4	dry		
103-03.0	S. Five Mile/N. Greens Ledge	6/17/03	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	8/6/03	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/18/03	14	wet		
103-03.0	S. Five Mile/N. Greens Ledge	10/1/03	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	10/2/03	4	dry		
103-03.0	S. Five Mile/N. Greens Ledge	7/7/04	2	wet	3	NA
103-03.0	S. Five Mile/N. Greens Ledge	8/9/04	2	dry		
103-03.0	S. Five Mile/N. Greens Ledge	9/13/04	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	9/21/04	14	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/16/05	19	wet	9	NA
103-03.0	S. Five Mile/N. Greens Ledge	10/26/05	4	wet		
103-03.0	S. Five Mile/N. Greens Ledge	7/17/06	1	dry	2	4
103-03.0	S. Five Mile/N. Greens Ledge	8/31/06	37	wet		
103-03.0	S. Five Mile/N. Greens Ledge	9/5/06	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	9/6/06	1	dry		
103-03.0	S. Five Mile/N. Greens Ledge	10/16/06	1	dry		
103-03.0	S. Five Mile/N. Greens Ledge	11/1/06	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	11/27/06	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/ Dry	Geo Mean	Reduction of Exceeding Samples
103-03.0	S. Five Mile/N. Greens Ledge	3/5/07	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	5/1/07	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/5/07	81	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/7/07	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	7/24/07	3	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/8/07	1	wet	2	NA
103-03.0	S. Five Mile/N. Greens Ledge	8/23/07	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	9/13/07	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	10/15/07	9	wet		
103-03.0	S. Five Mile/N. Greens Ledge	10/22/07	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	10/30/07	3	wet		
103-03.0	S. Five Mile/N. Greens Ledge	2/4/08	1	dry		
103-03.0	S. Five Mile/N. Greens Ledge	2/20/08	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	7/28/08	1	dry		
103-03.0	S. Five Mile/N. Greens Ledge	8/5/08	1	dry	2	NA
103-03.0	S. Five Mile/N. Greens Ledge	9/10/08	11	wet		
103-03.0	S. Five Mile/N. Greens Ledge	12/16/08	7	wet		
103-03.0	S. Five Mile/N. Greens Ledge	12/23/08	6	wet		
103-03.0	S. Five Mile/N. Greens Ledge	4/2/09	1	dry		
103-03.0	S. Five Mile/N. Greens Ledge	4/22/09	2	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/10/09	19	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/23/09	11	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/29/09	6	dry	3	NA
103-03.0	S. Five Mile/N. Greens Ledge	8/3/09	3	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/26/09	1	dry		
103-03.0	S. Five Mile/N. Greens Ledge	8/31/09	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/ Dry	Geo Mean	Reduction of Exceeding Samples
103-03.0	S. Five Mile/N. Greens Ledge	3/2/10	1	wet	2	NA
103-03.0	S. Five Mile/N. Greens Ledge	3/17/10	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	3/25/10	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	5/4/10	24	wet		
103-03.0	S. Five Mile/N. Greens Ledge	5/19/10	12	wet		
103-03.0	S. Five Mile/N. Greens Ledge	6/23/10	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/17/10	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	8/25/10	1	wet		
103-03.0	S. Five Mile/N. Greens Ledge	4/26/11	1	dry	1	NA
103-03.0	S. Five Mile/N. Greens Ledge	6/27/11	1	dry		
103-04.0	NE Greens Ledge R"2A"	2/16/00	2	wet	3	3
103-04.0	NE Greens Ledge R"2A"	4/24/00	2	wet		
103-04.0	NE Greens Ledge R"2A"	5/15/00	4	wet		
103-04.0	NE Greens Ledge R"2A"	5/25/00	14	wet		
103-04.0	NE Greens Ledge R"2A"	6/21/00	2	dry		
103-04.0	NE Greens Ledge R"2A"	7/18/00	2	dry		
103-04.0	NE Greens Ledge R"2A"	7/19/00	2	dry		
103-04.0	NE Greens Ledge R"2A"	9/13/00	36	wet		
103-04.0	NE Greens Ledge R"2A"	2/2/01	6	dry	4	4
103-04.0	NE Greens Ledge R"2A"	2/7/01	4	wet		
103-04.0	NE Greens Ledge R"2A"	6/20/01	4	dry		
103-04.0	NE Greens Ledge R"2A"	8/15/01	2	wet		
103-04.0	NE Greens Ledge R"2A"	8/28/01	51	wet		
103-04.0	NE Greens Ledge R"2A"	8/30/01	2	dry		
103-04.0	NE Greens Ledge R"2A"	9/24/01	2	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-04.0	NE Greens Ledge R"2A"	1/9/02	2	dry	4	3
103-04.0	NE Greens Ledge R"2A"	5/22/02	2	dry		
103-04.0	NE Greens Ledge R"2A"	6/11/02	2	wet		
103-04.0	NE Greens Ledge R"2A"	6/17/02	6	dry		
103-04.0	NE Greens Ledge R"2A"	9/3/02	50	wet		
103-04.0	NE Greens Ledge R"2A"	9/4/02	11	wet		
103-04.0	NE Greens Ledge R"2A"	9/30/02	2	dry		
103-04.0	NE Greens Ledge R"2A"	10/28/02	2	wet		
103-04.0	NE Greens Ledge R"2A"	2/26/03	2	wet	3	NA
103-04.0	NE Greens Ledge R"2A"	4/30/03	2	dry		
103-04.0	NE Greens Ledge R"2A"	6/2/03	18	wet		
103-04.0	NE Greens Ledge R"2A"	6/17/03	2	dry		
103-04.0	NE Greens Ledge R"2A"	8/6/03	2	wet		
103-04.0	NE Greens Ledge R"2A"	8/18/03	18	wet		
103-04.0	NE Greens Ledge R"2A"	10/1/03	2	dry		
103-04.0	NE Greens Ledge R"2A"	10/2/03	2	dry		
103-04.0	NE Greens Ledge R"2A"	7/7/04	2	wet	2	NA
103-04.0	NE Greens Ledge R"2A"	8/9/04	2	dry		
103-04.0	NE Greens Ledge R"2A"	9/13/04	2	wet		
103-04.0	NE Greens Ledge R"2A"	9/21/04	8	wet		
103-04.0	NE Greens Ledge R"2A"	8/16/05	14	wet	14	NA
103-04.0	NE Greens Ledge R"2A"	10/26/05	15	wet		
103-04.0	NE Greens Ledge R"2A"	7/17/06	1	dry	2	NA
103-04.0	NE Greens Ledge R"2A"	8/31/06	30	wet		
103-04.0	NE Greens Ledge R"2A"	9/5/06	1	wet		
103-04.0	NE Greens Ledge R"2A"	9/6/06	1	dry		
103-04.0	NE Greens Ledge R"2A"	10/16/06	1	dry		
103-04.0	NE Greens Ledge R"2A"	11/1/06	1	wet		
103-04.0	NE Greens Ledge R"2A"	11/27/06	4	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-04.0	NE Greens Ledge R"2A"	3/5/07	1	wet	2	NA
103-04.0	NE Greens Ledge R"2A"	5/1/07	1	wet		
103-04.0	NE Greens Ledge R"2A"	6/5/07	35	wet		
103-04.0	NE Greens Ledge R"2A"	6/7/07	1	wet		
103-04.0	NE Greens Ledge R"2A"	7/24/07	1	wet		
103-04.0	NE Greens Ledge R"2A"	8/8/07	1	wet		
103-04.0	NE Greens Ledge R"2A"	8/23/07	1	wet		
103-04.0	NE Greens Ledge R"2A"	9/13/07	1	wet		
103-04.0	NE Greens Ledge R"2A"	10/15/07	15	wet		
103-04.0	NE Greens Ledge R"2A"	10/22/07	2	wet		
103-04.0	NE Greens Ledge R"2A"	10/30/07	11	wet		
103-04.0	NE Greens Ledge R"2A"	12/5/07	1	wet		
103-04.0	NE Greens Ledge R"2A"	2/4/08	1	dry	2	NA
103-04.0	NE Greens Ledge R"2A"	7/28/08	1	dry		
103-04.0	NE Greens Ledge R"2A"	8/5/08	1	dry		
103-04.0	NE Greens Ledge R"2A"	9/10/08	8	wet		
103-04.0	NE Greens Ledge R"2A"	12/15/08	1	wet		
103-04.0	NE Greens Ledge R"2A"	12/16/08	3	wet		
103-04.0	NE Greens Ledge R"2A"	12/23/08	1	wet		
103-04.0	NE Greens Ledge R"2A"	4/2/09	1	dry	2	NA
103-04.0	NE Greens Ledge R"2A"	4/22/09	3	wet		
103-04.0	NE Greens Ledge R"2A"	6/10/09	2	wet		
103-04.0	NE Greens Ledge R"2A"	6/23/09	5	wet		
103-04.0	NE Greens Ledge R"2A"	6/29/09	2	dry		
103-04.0	NE Greens Ledge R"2A"	8/3/09	3	wet		
103-04.0	NE Greens Ledge R"2A"	8/26/09	1	dry		
103-04.0	NE Greens Ledge R"2A"	8/31/09	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-04.0	NE Greens Ledge R"2A"	3/2/10	1	wet	2	NA
103-04.0	NE Greens Ledge R"2A"	3/17/10	1	wet		
103-04.0	NE Greens Ledge R"2A"	3/25/10	1	wet		
103-04.0	NE Greens Ledge R"2A"	5/4/10	12	wet		
103-04.0	NE Greens Ledge R"2A"	5/19/10	3	wet		
103-04.0	NE Greens Ledge R"2A"	6/23/10	1	wet		
103-04.0	NE Greens Ledge R"2A"	8/17/10	3	wet		
103-04.0	NE Greens Ledge R"2A"	8/25/10	1	wet		
103-04.0	NE Greens Ledge R"2A"	4/26/11	1	dry	1	1
103-04.0	NE Greens Ledge R"2A"	6/27/11	1	dry		
103-05.1	C"1A" S. Noroton Pt.	2/16/00	2	wet	3	NA
103-05.1	C"1A" S. Noroton Pt.	5/15/00	4	wet		
103-05.1	C"1A" S. Noroton Pt.	6/21/00	2	dry		
103-05.1	C"1A" S. Noroton Pt.	8/7/00	2	dry		
103-05.1	C"1A" S. Noroton Pt.	9/13/00	18	wet		
103-05.1	C"1A" S. Noroton Pt.	1/23/01	2	dry	3	6
103-05.1	C"1A" S. Noroton Pt.	2/2/01	2	dry		
103-05.1	C"1A" S. Noroton Pt.	2/7/01	2	wet		
103-05.1	C"1A" S. Noroton Pt.	8/15/01	2	wet		
103-05.1	C"1A" S. Noroton Pt.	8/28/01	51	wet		
103-05.1	C"1A" S. Noroton Pt.	8/30/01	4	dry		
103-05.1	C"1A" S. Noroton Pt.	1/9/02	8	dry	9	23
103-05.1	C"1A" S. Noroton Pt.	9/3/02	51	wet		
103-05.1	C"1A" S. Noroton Pt.	10/28/02	2	wet		
103-05.1	C"1A" S. Noroton Pt.	2/26/03	2	wet	3	NA
103-05.1	C"1A" S. Noroton Pt.	4/30/03	2	dry		
103-05.1	C"1A" S. Noroton Pt.	8/6/03	2	wet		
103-05.1	C"1A" S. Noroton Pt.	8/18/03	11	wet		
103-05.1	C"1A" S. Noroton Pt.	7/7/04	2	wet	5	NA
103-05.1	C"1A" S. Noroton Pt.	8/23/04	18	wet		
103-05.1	C"1A" S. Noroton Pt.	8/16/05	41	wet	13	**40**
103-05.1	C"1A" S. Noroton Pt.	10/26/05	4	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-05.1	C"1A" S. Noroton Pt.	9/6/06	1	dry	NA	NA
103-05.1	C"1A" S. Noroton Pt.	7/9/07	1	dry	1	NA
103-05.1	C"1A" S. Noroton Pt.	8/23/07	1	wet		
103-05.1	C"1A" S. Noroton Pt.	9/13/07	1	wet		
103-05.1	C"1A" S. Noroton Pt.	12/5/07	1	wet		
103-05.1	C"1A" S. Noroton Pt.	2/20/08	1	wet	2	NA
103-05.1	C"1A" S. Noroton Pt.	7/28/08	1	dry		
103-05.1	C"1A" S. Noroton Pt.	8/11/08	1	dry		
103-05.1	C"1A" S. Noroton Pt.	9/10/08	29	wet		
103-05.1	C"1A" S. Noroton Pt.	9/16/08	1	wet		
103-05.1	C"1A" S. Noroton Pt.	12/15/08	1	wet		
103-05.1	C"1A" S. Noroton Pt.	12/16/08	1	wet		
103-05.1	C"1A" S. Noroton Pt.	12/23/08	1	wet		
103-05.1	C"1A" S. Noroton Pt.	4/2/09	1	dry	2	NA
103-05.1	C"1A" S. Noroton Pt.	4/22/09	1	wet		
103-05.1	C"1A" S. Noroton Pt.	6/10/09	8	wet		
103-05.1	C"1A" S. Noroton Pt.	6/29/09	4	dry		
103-05.1	C"1A" S. Noroton Pt.	8/3/09	1	wet		
103-05.1	C"1A" S. Noroton Pt.	8/26/09	1	dry		
103-05.1	C"1A" S. Noroton Pt.	8/31/09	2	wet		
103-05.1	C"1A" S. Noroton Pt.	9/15/09	1	dry		
103-05.1	C"1A" S. Noroton Pt.	10/28/09	1	dry		
103-05.1	C"1A" S. Noroton Pt.	10/29/09	7	wet		
103-05.1	C"1A" S. Noroton Pt.	11/16/09	2	wet		
103-05.1	C"1A" S. Noroton Pt.	12/15/09	4	wet		
103-05.1	C"1A" S. Noroton Pt.	3/2/10	1	wet	4	4
103-05.1	C"1A" S. Noroton Pt.	3/17/10	1	wet		
103-05.1	C"1A" S. Noroton Pt.	5/19/10	7	wet		
103-05.1	C"1A" S. Noroton Pt.	8/17/10	49	wet		
103-05.1	C"1A" S. Noroton Pt.	8/25/10	1	wet		
103-05.1	C"1A" S. Noroton Pt.	12/13/10	12	wet		
103-05.1	C"1A" S. Noroton Pt.	12/16/10	2	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-05.1	C"1A" S. Noroton Pt.	4/19/11	1	wet	2	NA
103-05.1	C"1A" S. Noroton Pt.	4/26/11	1	dry		
103-05.1	C"1A" S. Noroton Pt.	5/23/11	9	wet		
103-05.1	C"1A" S. Noroton Pt.	6/20/11	1	wet		
103-05.1	C"1A" S. Noroton Pt.	6/27/11	1	dry		
103-05.1	C"1A" S. Noroton Pt.	7/21/11	2	dry		
103-12.2	N"28" Great Reef	4/24/00	2	wet	2	NA
103-12.2	N"28" Great Reef	5/25/00	2	wet		
103-12.2	N"28" Great Reef	6/21/00	2	dry		
103-12.2	N"28" Great Reef	7/18/00	2	dry		
103-12.2	N"28" Great Reef	7/19/00	2	dry		
103-12.2	N"28" Great Reef	9/14/00	2	wet		
103-12.2	N"28" Great Reef	2/2/01	2	dry	2	NA
103-12.2	N"28" Great Reef	4/2/01	2	wet		
103-12.2	N"28" Great Reef	5/29/01	2	dry		
103-12.2	N"28" Great Reef	6/20/01	8	dry		
103-12.2	N"28" Great Reef	8/14/01	4	wet		
103-12.2	N"28" Great Reef	8/30/01	2	dry		
103-12.2	N"28" Great Reef	9/24/01	2	wet		
103-12.2	N"28" Great Reef	5/22/02	2	dry	4	4
103-12.2	N"28" Great Reef	6/11/02	2	wet		
103-12.2	N"28" Great Reef	6/17/02	4	dry		
103-12.2	N"28" Great Reef	9/3/02	50	wet		
103-12.2	N"28" Great Reef	9/4/02	18	wet		
103-12.2	N"28" Great Reef	9/30/02	2	dry		
103-12.2	N"28" Great Reef	10/28/02	2	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-12.2	N"28" Great Reef	4/30/03	2	dry	2	NA
103-12.2	N"28" Great Reef	6/2/03	11	wet		
103-12.2	N"28" Great Reef	6/11/03	2	dry		
103-12.2	N"28" Great Reef	6/17/03	2	dry		
103-12.2	N"28" Great Reef	8/6/03	2	wet		
103-12.2	N"28" Great Reef	8/18/03	2	wet		
103-12.2	N"28" Great Reef	10/1/03	2	dry		
103-12.2	N"28" Great Reef	7/7/04	2	wet	3	NA
103-12.2	N"28" Great Reef	8/9/04	2	dry		
103-12.2	N"28" Great Reef	9/13/04	2	wet		
103-12.2	N"28" Great Reef	9/21/04	11	wet		
103-12.2	N"28" Great Reef	8/16/05	26	wet	NA	NA
103-12.2	N"28" Great Reef	7/17/06	1	dry	2	NA
103-12.2	N"28" Great Reef	8/31/06	16	wet		
103-12.2	N"28" Great Reef	9/5/06	1	wet		
103-12.2	N"28" Great Reef	9/6/06	1	dry		
103-12.2	N"28" Great Reef	10/16/06	1	dry		
103-12.2	N"28" Great Reef	11/1/06	1	wet		
103-12.2	N"28" Great Reef	11/27/06	2	dry		
103-12.2	N"28" Great Reef	3/5/07	1	wet	2	NA
103-12.2	N"28" Great Reef	5/1/07	1	wet		
103-12.2	N"28" Great Reef	6/5/07	81	wet		
103-12.2	N"28" Great Reef	6/7/07	1	wet		
103-12.2	N"28" Great Reef	7/24/07	1	wet		
103-12.2	N"28" Great Reef	8/8/07	1	wet		
103-12.2	N"28" Great Reef	8/23/07	1	wet		
103-12.2	N"28" Great Reef	9/13/07	1	wet		
103-12.2	N"28" Great Reef	10/15/07	8	wet		
103-12.2	N"28" Great Reef	10/22/07	1	wet		
103-12.2	N"28" Great Reef	10/30/07	1	wet		
103-12.2	N"28" Great Reef	12/5/07	1	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
103-12.2	N"28" Great Reef	2/4/08	1	dry	2	NA
103-12.2	N"28" Great Reef	7/28/08	1	dry		
103-12.2	N"28" Great Reef	8/5/08	1	dry		
103-12.2	N"28" Great Reef	9/10/08	7	wet		
103-12.2	N"28" Great Reef	12/16/08	2	wet		
103-12.2	N"28" Great Reef	12/23/08	1	wet		
103-12.2	N"28" Great Reef	4/2/09	1	dry	2	NA
103-12.2	N"28" Great Reef	4/22/09	3	wet		
103-12.2	N"28" Great Reef	6/10/09	3	wet		
103-12.2	N"28" Great Reef	6/23/09	6	wet		
103-12.2	N"28" Great Reef	8/3/09	1	wet		
103-12.2	N"28" Great Reef	8/26/09	1	dry		
103-12.2	N"28" Great Reef	8/31/09	1	wet		
103-12.2	N"28" Great Reef	3/2/10	1	wet	1	NA
103-12.2	N"28" Great Reef	3/17/10	1	wet		
103-12.2	N"28" Great Reef	3/25/10	1	wet		
103-12.2	N"28" Great Reef	5/4/10	2	wet		
103-12.2	N"28" Great Reef	5/19/10	2	wet		
103-12.2	N"28" Great Reef	6/23/10	1	wet		
103-12.2	N"28" Great Reef	8/17/10	1	wet		
103-12.2	N"28" Great Reef	8/25/10	2	wet		
103-12.2	N"28" Great Reef	4/26/11	1	dry	1	NA
103-12.2	N"28" Great Reef	6/27/11	1	dry		

Shaded cells indicate an exceedance of water quality criteria

†Average of two duplicate samples

**** Weather conditions for selected data taken from Hartford because local station had missing data**

***Indicates geometric mean and 90% less than values used to calculate the percent reduction**

Wet and dry weather geometric mean values for all monitoring stations on Segment 4: LIS WB Midshore – Outer Fivemile River Estuary (CT-W3_009)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
035-05.0	SE Fish Island	2000-2011	42	21	4	5	3
035-06.0	S. C"1" - S Butlers Island	2000-2011	54	29	3	4	2
035-07.0	N. C"1" - S Butlers Island	2000-2011	54	27	3	3	2
103-02.0	S. Five Mile River N"2"	2000-2011	40	20	3	3	2
103-03.0	S. Five Mile/N. Greens Ledge	2000-2011	48	26	2	2	2
103-04.0	NE Greens Ledge R"2A"	2000-2011	49	25	3	4	2
103-05.1	C"1A" S. Noroton Pt.	2000-2011	50	25	3	3	2
103-12.2	N"28" Great Reef	2000-2005, 2007-2011	43	23	3	4	2
Shaded cells indicate an exceedance of water quality criteria							

Table 18: Segment 5: LIS WB Midshore – Outer Cove Harbor Bacteria Data

Waterbody ID: CT-W3_010

Characteristics: Saltwater, Class SA, Shellfishing Harvesting for Direct Human Consumption, Recreation, Habitat for Marine Fish and other Aquatic Life and Wildlife, Industrial Water Supply, and Navigation

Impairment: Shellfish harvesting (*fecal coliform bacteria)*

Water Quality Criteria for fecal coliform:

Geometric Mean: 14 colonies/100 mL

$90^{\%}$ of samples less than: 31 colonies/100 mL

Percent Reduction to meet TMDL:

Geometric Mean: **NA**

$90^{\%}$ of samples less than: **40%**

Data: 2000 - 2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.2	SW Long Neck Pt.	4/24/00	2	wet	6	6
035-02.2	SW Long Neck Pt.	5/25/00	51	wet		
035-02.2	SW Long Neck Pt.	6/21/00	8	dry		
035-02.2	SW Long Neck Pt.	7/18/00	2	dry		
035-02.2	SW Long Neck Pt.	7/19/00	8	dry		
035-02.2	SW Long Neck Pt.	9/13/00	6	wet		
035-02.2	SW Long Neck Pt.	4/2/01	4	wet	6	6
035-02.2	SW Long Neck Pt.	5/29/01	2	dry		
035-02.2	SW Long Neck Pt.	8/15/01	4	wet		
035-02.2	SW Long Neck Pt.	8/28/01	50	wet		
035-02.2	SW Long Neck Pt.	8/30/01	2	dry		
035-02.2	SW Long Neck Pt.	9/24/01	22	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.2	SW Long Neck Pt.	5/22/02	2	dry	13	**40**
035-02.2	SW Long Neck Pt.	6/11/02	2	wet		
035-02.2	SW Long Neck Pt.	9/3/02	51	wet		
035-02.2	SW Long Neck Pt.	9/4/02	51	wet		
035-02.2	SW Long Neck Pt.	9/30/02	51	dry		
035-02.2	SW Long Neck Pt.	10/28/02	11	wet		
035-02.2	SW Long Neck Pt.	6/11/03	6	dry	8	15
035-02.2	SW Long Neck Pt.	8/18/03	2	wet		
035-02.2	SW Long Neck Pt.	10/1/03	14	dry		
035-02.2	SW Long Neck Pt.	10/2/03	36	dry		
035-02.2	SW Long Neck Pt.	7/7/04	2	wet	4	14
035-02.2	SW Long Neck Pt.	8/9/04	2	dry		
035-02.2	SW Long Neck Pt.	9/13/04	6	wet		
035-02.2	SW Long Neck Pt.	9/21/04	18	wet		
035-02.2	SW Long Neck Pt.	1/25/05	1	wet	7	23
035-02.2	SW Long Neck Pt.	8/16/05	42	wet		
035-02.2	SW Long Neck Pt.	10/27/05	10	wet		
035-02.2	SW Long Neck Pt.	7/17/06	1	dry	2	NA
035-02.2	SW Long Neck Pt.	8/31/06	28	wet		
035-02.2	SW Long Neck Pt.	10/16/06	1	dry		
035-02.2	SW Long Neck Pt.	11/1/06	1	wet		
035-02.2	SW Long Neck Pt.	11/27/06	1	dry		
035-02.2	SW Long Neck Pt.	5/1/07	1	wet	10	20
035-02.2	SW Long Neck Pt.	6/5/07	70	wet		
035-02.2	SW Long Neck Pt.	6/7/07	3	wet		
035-02.2	SW Long Neck Pt.	7/24/07	10	wet		
035-02.2	SW Long Neck Pt.	8/8/07	71	wet		
035-02.2	SW Long Neck Pt.	8/23/07	3	wet		
035-02.2	SW Long Neck Pt.	9/12/07	75	wet		
035-02.2	SW Long Neck Pt.	10/15/07	24	wet		
035-02.2	SW Long Neck Pt.	10/22/07	12	wet		
035-02.2	SW Long Neck Pt.	10/31/07	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.2	SW Long Neck Pt.	2/4/08	1	dry	3	NA
035-02.2	SW Long Neck Pt.	7/28/08	1	dry		
035-02.2	SW Long Neck Pt.	8/5/08	3	dry		
035-02.2	SW Long Neck Pt.	9/10/08	16	wet		
035-02.2	SW Long Neck Pt.	9/17/08	9	dry		
035-02.2	SW Long Neck Pt.	12/16/08	1	wet		
035-02.2	SW Long Neck Pt.	4/2/09	1	dry	1	NA
035-02.2	SW Long Neck Pt.	4/22/09	5	wet		
035-02.2	SW Long Neck Pt.	6/11/09	1	wet		
035-02.2	SW Long Neck Pt.	7/23/09	1	wet		
035-02.2	SW Long Neck Pt.	8/3/09	1	wet		
035-02.2	SW Long Neck Pt.	8/27/09	1	dry		
035-02.2	SW Long Neck Pt.	8/31/09	2	wet		
035-02.2	SW Long Neck Pt.	3/2/10	1	wet	4	NA
035-02.2	SW Long Neck Pt.	3/25/10	1	wet		
035-02.2	SW Long Neck Pt.	5/5/10	2	wet		
035-02.2	SW Long Neck Pt.	5/20/10	4	wet		
035-02.2	SW Long Neck Pt.	6/23/10	15	wet		
035-02.2	SW Long Neck Pt.	8/17/10	4	wet		
035-02.2	SW Long Neck Pt.	9/29/10	16	wet		
035-02.2	SW Long Neck Pt.	3/14/11	1	dry	1	NA
035-02.2	SW Long Neck Pt.	4/26/11	1	dry		
035-02.2	SW Long Neck Pt.	6/27/11	1	dry		
035-02.3	S. Nash Island	4/24/00	6	wet	4	NA
035-02.3	S. Nash Island	5/25/00	4	wet		
035-02.3	S. Nash Island	6/21/00	8	dry		
035-02.3	S. Nash Island	7/18/00	2	dry		
035-02.3	S. Nash Island	7/19/00	2	dry		
035-02.3	S. Nash Island	9/13/00	8	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.3	S. Nash Island	4/2/01	2	wet	7	19
035-02.3	S. Nash Island	5/29/01	2	dry		
035-02.3	S. Nash Island	6/20/01	4†	wet		
035-02.3	S. Nash Island	8/15/01	6	wet		
035-02.3	S. Nash Island	8/28/01	50	wet		
035-02.3	S. Nash Island	8/30/01	6	dry		
035-02.3	S. Nash Island	9/24/01	50	wet		
035-02.3	S. Nash Island	5/22/02	2	dry	8	23
035-02.3	S. Nash Island	6/11/02	2	wet		
035-02.3	S. Nash Island	9/3/02	51	wet		
035-02.3	S. Nash Island	9/4/02	51	wet		
035-02.3	S. Nash Island	9/30/02	2	dry		
035-02.3	S. Nash Island	10/28/02	22	wet		
035-02.3	S. Nash Island	6/6/03	51	wet	**20* (30%)**	30
035-02.3	S. Nash Island	6/11/03	4	dry		
035-02.3	S. Nash Island	8/18/03	51	wet		
035-02.3	S. Nash Island	10/1/03	18	dry		
035-02.3	S. Nash Island	10/2/03	18	dry		
035-02.3	S. Nash Island	7/7/04	2	wet	3	NA
035-02.3	S. Nash Island	8/9/04	2	dry		
035-02.3	S. Nash Island	9/13/04	2	wet		
035-02.3	S. Nash Island	9/21/04	28	wet		
035-02.3	S. Nash Island	1/25/05	5	wet	12	23
035-02.3	S. Nash Island	8/16/05	51	wet		
035-02.3	S. Nash Island	10/27/05	6	wet		
035-02.3	S. Nash Island	7/17/06	1	dry	5	10
035-02.3	S. Nash Island	8/31/06	81	wet		
035-02.3	S. Nash Island	10/16/06	1	dry		
035-02.3	S. Nash Island	11/1/06	4	wet		
035-02.3	S. Nash Island	11/27/06	9	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.3	S. Nash Island	5/1/07	1	wet	9	30
035-02.3	S. Nash Island	6/5/07	81	wet		
035-02.3	S. Nash Island	6/7/07	1	wet		
035-02.3	S. Nash Island	7/24/07	4	wet		
035-02.3	S. Nash Island	8/8/07	81	wet		
035-02.3	S. Nash Island	8/23/07	3	wet		
035-02.3	S. Nash Island	9/12/07	33	wet		
035-02.3	S. Nash Island	10/15/07	36	wet		
035-02.3	S. Nash Island	10/22/07	2	wet		
035-02.3	S. Nash Island	10/31/07	12	dry		
035-02.3	S. Nash Island	2/4/08	1	dry	5	6
035-02.3	S. Nash Island	7/28/08	1	dry		
035-02.3	S. Nash Island	8/5/08	6	dry		
035-02.3	S. Nash Island	9/10/08	75	wet		
035-02.3	S. Nash Island	9/17/08	9	dry		
035-02.3	S. Nash Island	12/16/08	4	wet		
035-02.3	S. Nash Island	4/2/09	1	dry	2	NA
035-02.3	S. Nash Island	4/22/09	15	wet		
035-02.3	S. Nash Island	6/11/09	2	wet		
035-02.3	S. Nash Island	7/23/09	1	wet		
035-02.3	S. Nash Island	8/3/09	3	wet		
035-02.3	S. Nash Island	8/27/09	2	dry		
035-02.3	S. Nash Island	8/31/09	1	wet		
035-02.3	S. Nash Island	3/2/10	1	wet	3	NA
035-02.3	S. Nash Island	3/25/10	2	wet		
035-02.3	S. Nash Island	5/5/10	3	wet		
035-02.3	S. Nash Island	5/20/10	1	wet		
035-02.3	S. Nash Island	6/23/10	6	wet		
035-02.3	S. Nash Island	8/17/10	1	wet		
035-02.3	S. Nash Island	9/29/10	19	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.3	S. Nash Island	3/14/11	1	dry	1	NA
035-02.3	S. Nash Island	4/26/11	1	dry		
035-02.3	S. Nash Island	6/27/11	1	dry		
035-02.4	S. station 2.3	6/11/03	4	dry	8	15
035-02.4	S. station 2.3	8/18/03	51	wet		
035-02.4	S. station 2.3	10/1/03	2	dry		
035-02.4	S. station 2.3	10/2/03	14	dry		
035-02.4	S. station 2.3	8/9/04	4	dry	5	NA
035-02.4	S. station 2.3	9/13/04	2	wet		
035-02.4	S. station 2.3	9/21/04	18	wet		
035-02.4	S. station 2.3	1/25/05	2	wet	6	23
035-02.4	S. station 2.3	8/16/05	32	wet		
035-02.4	S. station 2.3	10/27/05	4	wet		
035-02.4	S. station 2.3	7/17/06	1	dry	4	10
035-02.4	S. station 2.3	8/31/06	64	wet		
035-02.4	S. station 2.3	10/16/06	1	dry		
035-02.4	S. station 2.3	11/1/06	7	wet		
035-02.4	S. station 2.3	11/27/06	2	dry		
035-02.4	S. station 2.3	5/1/07	1	wet	3	NA
035-02.4	S. station 2.3	6/5/07	54	wet		
035-02.4	S. station 2.3	6/7/07	3	wet		
035-02.4	S. station 2.3	7/24/07	1	wet		
035-02.4	S. station 2.3	8/8/07	1	wet		
035-02.4	S. station 2.3	8/23/07	1	wet		
035-02.4	S. station 2.3	9/12/07	3	wet		
035-02.4	S. station 2.3	10/15/07	8	wet		
035-02.4	S. station 2.3	10/22/07	2	wet		
035-02.4	S. station 2.3	10/31/07	12	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.4	S. station 2.3	2/4/08	6	dry	5	6
035-02.4	S. station 2.3	7/28/08	5	dry		
035-02.4	S. station 2.3	8/5/08	4	dry		
035-02.4	S. station 2.3	9/10/08	81	wet		
035-02.4	S. station 2.3	9/17/08	1	dry		
035-02.4	S. station 2.3	12/16/08	2	wet		
035-02.4	S. station 2.3	4/2/09	1	dry	2	NA
035-02.4	S. station 2.3	4/22/09	8	wet		
035-02.4	S. station 2.3	6/11/09	1	wet		
035-02.4	S. station 2.3	7/23/09	1	wet		
035-02.4	S. station 2.3	8/3/09	1	wet		
035-02.4	S. station 2.3	8/27/09	2	dry		
035-02.4	S. station 2.3	8/31/09	3	wet		
035-02.4	S. station 2.3	9/15/09	1	dry		
035-02.4	S. station 2.3	11/16/09	1	wet		
035-02.4	S. station 2.3	3/2/10	1	wet	3	NA
035-02.4	S. station 2.3	3/17/10	1	wet		
035-02.4	S. station 2.3	3/25/10	1	wet		
035-02.4	S. station 2.3	5/5/10	4	wet		
035-02.4	S. station 2.3	5/20/10	1	wet		
035-02.4	S. station 2.3	6/23/10	3	wet		
035-02.4	S. station 2.3	8/17/10	1	wet		
035-02.4	S. station 2.3	9/29/10	11	wet		
035-02.4	S. station 2.3	12/13/10	58	wet		
035-02.4	S. station 2.3	12/16/10	2	dry		
035-02.4	S. station 2.3	3/14/11	1	dry	1	NA
035-02.4	S. station 2.3	4/26/11	1	dry		
035-02.4	S. station 2.3	5/23/11	2	wet		
035-02.4	S. station 2.3	6/20/11	1	wet		
035-02.4	S. station 2.3	6/27/11	1	dry		
035-02.4	S. station 2.3	7/21/11	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.5	S. station 2.2	6/6/03	51	wet	8	10
035-02.5	S. station 2.2	6/11/03	8	dry		
035-02.5	S. station 2.2	8/18/03	2	wet		
035-02.5	S. station 2.2	10/1/03	2	dry		
035-02.5	S. station 2.2	10/2/03	28	dry		
035-02.5	S. station 2.2	8/9/04	2	dry	5	23
035-02.5	S. station 2.2	9/13/04	2	wet		
035-02.5	S. station 2.2	9/21/04	36	wet		
035-02.5	S. station 2.2	1/25/05	5	wet	14	15
035-02.5	S. station 2.2	8/16/05	45	wet		
035-02.5	S. station 2.2	10/26/05	12	wet		
035-02.5	S. station 2.2	10/27/05	13	wet		
035-02.5	S. station 2.2	7/17/06	1	dry	2	NA
035-02.5	S. station 2.2	8/31/06	26	wet		
035-02.5	S. station 2.2	10/16/06	1	dry		
035-02.5	S. station 2.2	11/1/06	2	wet		
035-02.5	S. station 2.2	11/27/06	1	dry		
035-02.5	S. station 2.2	5/1/07	1	wet	2	NA
035-02.5	S. station 2.2	6/5/07	81	wet		
035-02.5	S. station 2.2	6/7/07	1	wet		
035-02.5	S. station 2.2	7/24/07	1	wet		
035-02.5	S. station 2.2	8/8/07	1	wet		
035-02.5	S. station 2.2	8/23/07	2	wet		
035-02.5	S. station 2.2	9/12/07	1	wet		
035-02.5	S. station 2.2	10/15/07	16	wet		
035-02.5	S. station 2.2	10/22/07	1	wet		
035-02.5	S. station 2.2	10/31/07	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.5	S. station 2.2	2/4/08	1	dry	2	6
035-02.5	S. station 2.2	7/28/08	1	dry		
035-02.5	S. station 2.2	8/5/08	1	dry		
035-02.5	S. station 2.2	9/10/08	50	wet		
035-02.5	S. station 2.2	9/17/08	1	dry		
035-02.5	S. station 2.2	12/16/08	2	wet		
035-02.5	S. station 2.2	4/2/09	1	dry	1	NA
035-02.5	S. station 2.2	4/22/09	4	wet		
035-02.5	S. station 2.2	6/11/09	1	wet		
035-02.5	S. station 2.2	6/23/09	4	wet		
035-02.5	S. station 2.2	7/23/09	1	wet		
035-02.5	S. station 2.2	8/3/09	1	wet		
035-02.5	S. station 2.2	8/27/09	1	dry		
035-02.5	S. station 2.2	8/31/09	1	wet		
035-02.5	S. station 2.2	3/17/10	1	wet	2	4
035-02.5	S. station 2.2	5/5/10	2	wet		
035-02.5	S. station 2.2	5/20/10	2	wet		
035-02.5	S. station 2.2	6/23/10	1	wet		
035-02.5	S. station 2.2	8/17/10	2	wet		
035-02.5	S. station 2.2	9/29/10	1	wet		
035-02.5	S. station 2.2	12/13/10	56	wet		
035-02.5	S. station 2.2	3/14/11	1	dry	1	NA
035-02.5	S. station 2.2	4/26/11	1	dry		
035-02.5	S. station 2.2	6/27/11	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.6	Long Neck Point	5/1/07	1	wet	4	1
035-02.6	Long Neck Point	6/5/07	81	wet		
035-02.6	Long Neck Point	6/7/07	1	wet		
035-02.6	Long Neck Point	8/8/07	13	wet		
035-02.6	Long Neck Point	8/23/07	1	wet		
035-02.6	Long Neck Point	9/12/07	19	wet		
035-02.6	Long Neck Point	10/15/07	16	wet		
035-02.6	Long Neck Point	10/22/07	1	wet		
035-02.6	Long Neck Point	10/31/07	1	dry		
035-02.6	Long Neck Point	2/4/08	1	dry	2	NA
035-02.6	Long Neck Point	7/28/08	2	dry		
035-02.6	Long Neck Point	8/5/08	1	dry		
035-02.6	Long Neck Point	9/10/08	9	wet		
035-02.6	Long Neck Point	9/17/08	1	dry		
035-02.6	Long Neck Point	12/16/08	1	wet		
035-02.6	Long Neck Point	4/2/09	1	dry	1	NA
035-02.6	Long Neck Point	4/22/09	4	wet		
035-02.6	Long Neck Point	6/11/09	3	wet		
035-02.6	Long Neck Point	6/23/09	1	wet		
035-02.6	Long Neck Point	7/23/09	1	wet		
035-02.6	Long Neck Point	8/3/09	2	wet		
035-02.6	Long Neck Point	8/27/09	1	dry		
035-02.6	Long Neck Point	8/31/09	1	wet		
035-02.6	Long Neck Point	3/2/10	1	wet	1	NA
035-02.6	Long Neck Point	3/17/10	1	wet		
035-02.6	Long Neck Point	3/25/10	1	wet		
035-02.6	Long Neck Point	5/5/10	1	wet		
035-02.6	Long Neck Point	5/20/10	1	wet		
035-02.6	Long Neck Point	6/23/10	6	wet		
035-02.6	Long Neck Point	8/17/10	1	wet		
035-02.6	Long Neck Point	9/29/10	1	wet		
035-02.6	Long Neck Point	12/13/10	6	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
035-02.6	Long Neck Point	3/14/11	1	dry	1	NA
035-02.6	Long Neck Point	4/26/11	1	dry		
035-02.6	Long Neck Point	6/27/11	1	dry		
035-02.9	Outer Cove Harbor, Darien	4/2/09	1	dry	2	NA
035-02.9	Outer Cove Harbor, Darien	6/11/09	4	wet		
035-02.9	Outer Cove Harbor, Darien	6/23/09	5	wet		
035-02.9	Outer Cove Harbor, Darien	7/23/09	3	wet		
035-02.9	Outer Cove Harbor, Darien	8/3/09	1	wet		
035-02.9	Outer Cove Harbor, Darien	8/27/09	1	dry		
035-02.9	Outer Cove Harbor, Darien	8/31/09	1	wet		
035-02.9	Outer Cove Harbor, Darien	3/17/10	1	wet	2	4
035-02.9	Outer Cove Harbor, Darien	5/5/10	1	wet		
035-02.9	Outer Cove Harbor, Darien	5/20/10	1	wet		
035-02.9	Outer Cove Harbor, Darien	6/23/10	1	wet		
035-02.9	Outer Cove Harbor, Darien	8/17/10	1	wet		
035-02.9	Outer Cove Harbor, Darien	9/29/10	1	wet		
035-02.9	Outer Cove Harbor, Darien	12/13/10	33	wet		
035-02.9	Outer Cove Harbor, Darien	3/14/11	1	dry	1	NA
035-02.9	Outer Cove Harbor, Darien	4/26/11	1	dry		
035-02.9	Outer Cove Harbor, Darien	6/27/11	1	dry		
135-05.3	Smith Reef	2/3/00	11	dry	3	NA
135-05.3	Smith Reef	4/24/00	2	wet		
135-05.3	Smith Reef	5/25/00	2	wet		
135-05.3	Smith Reef	7/18/00	4	dry		
135-05.3	Smith Reef	7/19/00	2	dry		
135-05.3	Smith Reef	9/18/00	2	dry		
135-05.3	Smith Reef	5/29/01	4	dry	5	NA
135-05.3	Smith Reef	6/20/01	4	wet		
135-05.3	Smith Reef	8/14/01	14	dry		
135-05.3	Smith Reef	8/30/01	2	dry		
135-05.3	Smith Reef	9/24/01	11	wet		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
135-05.3	Smith Reef	1/10/02	4	dry	4	10
135-05.3	Smith Reef	1/23/02	2	wet		
135-05.3	Smith Reef	6/11/02	2	wet		
135-05.3	Smith Reef	9/3/02	51	wet		
135-05.3	Smith Reef	9/30/02	4	dry		
135-05.3	Smith Reef	6/2/03	50	wet	11	30
135-05.3	Smith Reef	6/6/03	51	wet		
135-05.3	Smith Reef	6/11/03	2	dry		
135-05.3	Smith Reef	8/18/03	11	wet		
135-05.3	Smith Reef	10/1/03	4	dry		
135-05.3	Smith Reef	3/31/04	2	wet	2	NA
135-05.3	Smith Reef	5/11/04	2	wet		
135-05.3	Smith Reef	6/21/04	2	dry		
135-05.3	Smith Reef	7/7/04	2	dry		
135-05.3	Smith Reef	9/13/04	2	wet		
135-05.3	Smith Reef	9/21/04	14	dry		
135-05.3	Smith Reef	8/16/05	28	wet	4	NA
135-05.3	Smith Reef	10/26/05	1	wet		
135-05.3	Smith Reef	10/27/05	2	wet		
135-05.3	Smith Reef	7/17/06	1	dry	1	NA
135-05.3	Smith Reef	9/5/06	1	wet		
135-05.3	Smith Reef	9/6/06	1	dry		
135-05.3	Smith Reef	10/16/06	1	dry		
135-05.3	Smith Reef	11/1/06	1	dry		
135-05.3	Smith Reef	1/3/07	1	wet	2	6
135-05.3	Smith Reef	5/1/07	1	wet		
135-05.3	Smith Reef	6/7/07	1	wet		
135-05.3	Smith Reef	9/12/07	48	wet		
135-05.3	Smith Reef	10/22/07	5	wet		
135-05.3	Smith Reef	10/31/07	1	dry		

Single sample fecal coliform data (colonies/100 mL) from all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010) with annual geometric means and reduction goals for samples

Station Name	Station Location	Date	Result	Wet/Dry	Geo Mean	Reduction of Exceeding Samples
135-05.3	Smith Reef	5/29/08	1	wet	2	NA
135-05.3	Smith Reef	7/28/08	2	dry		
135-05.3	Smith Reef	9/10/08	26	wet		
135-05.3	Smith Reef	12/16/08	2	wet		
135-05.3	Smith Reef	12/26/08	1	wet		
135-05.3	Smith Reef	12/29/08	1	dry		
135-05.3	Smith Reef	4/22/09	2	wet	2	NA
135-05.3	Smith Reef	6/10/09	2	wet		
135-05.3	Smith Reef	6/24/09	1	dry		
135-05.3	Smith Reef	7/22/09	1	wet		
135-05.3	Smith Reef	8/4/09	1	dry		
135-05.3	Smith Reef	8/25/09	3	wet		
135-05.3	Smith Reef	1/27/10	1	wet	1	NA
135-05.3	Smith Reef	3/18/10	3	wet		
135-05.3	Smith Reef	3/25/10	1	wet		
135-05.3	Smith Reef	5/5/10	1	wet		
135-05.3	Smith Reef	5/20/10	1	wet		
135-05.3	Smith Reef	9/20/10	1	dry		
135-05.3	Smith Reef	4/26/11	1	dry	2	NA
135-05.3	Smith Reef	5/22/11	3	wet		

Shaded cells indicate an exceedance of water quality criteria

†Average of two duplicate samples

**** Weather conditions for selected data taken from Hartford because local station had missing data**

***Indicates geometric mean and 90% less than values used to calculate the percent reduction**

Wet and dry weather fecal coliform (colonies/100 mL) geometric mean values for all monitoring stations on Segment 5: LIS WB Midshore – Outer Cove Harbor (CT-W3_010)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
135-05.3	Smith Reef	2000-2011	36	25	3	3	2
035-02.2	SW Long Neck Pt.	2000-2011	43	24	5	6	3
035-02.3	S. Nash Island	2000-2011	46	24	5	7	3
035-02.4	S. station 2.3	2003-2011	36	20	3	4	2
035-02.5	S. station 2.2	2003-2011	34	17	3	4	2
035-02.6	Long Neck Point	2007-2011	25	10	2	2	1
035-02.9	Outer Cove Harbor, Darien	2009-2011	12	5	2	2	1
Shaded cells indicate an exceedance of water quality criteria							

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